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TREATMENT OF GENERAL PARALYSIS BY INOCULATION WITH MALARIA

A FIRST REPORT *

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The interest that has of late been increasingly manifested in malaria as a means of treatment in syphilis of the central nervous system, and particularly in general paralysis, has led us to believe that a preliminary statement of the results that we have so far observed in the use of this therapeutic method would not be without interest at the present time. Although a relatively small series of cases can have no very great value from a purely statistical standpoint, the numerically limited character of the material makes it convenient to refer to certain points of interest in somewhat greater detail, perhaps, than might otherwise be practicable.

REVIEW OF LITERATURE

To review in detail the evolution of the malarial treatment of general paralysis would be beyond the scope of the present communication; for a full account of the historical aspects of the subject the reader is referred to a forthcoming monograph.[1] Suffice it here to say that the idea of nonspecific treatment of general paralysis originated with Wagner von Jauregg, who, having noted the occurrence, as reported in the literature, of a not insignificant number of cases of general paralysis in which remission of symptoms took place following a protracted suppurative or febrile illness, proposed to reproduce the situation deliberately by the use of some agent capable of provoking a febrile response.[2] Selecting Koch's old tuberculin for this purpose, he was able to report his experiment as so far successful that the length of life in the treated groups was essentially longer than that of an equal number of untreated general paralytics, and that the former exhibited a higher proportion of remissions, and these of greater duration, than the latter.[3] This work was repeated and confirmed by Pilcz.[4]

After some years, Wagner von Jauregg abandoned tuberculin in favor of antityphoid vaccine injected intravenously;[5] but it was only after he had made the observation that those patients seemed to do best who had some infectious disease during and in addition to nonspecific treatment of this character that he turned his attention to the possibility of employing malaria as the fever-producing agent. In 1917, accordingly, he inoculated nine general paralytic patients with blood from a patient with tertian malaria,[6] with results so far favorable in the six cases out of the nine, which were not at the time very far advanced, that four years after treatment was concluded three of those six patients were still actively at work.[7] In 1922, he was able to report more than 200 cases of general paralysis treated by inoculation with malaria, out of which number over fifty exhibited a remission sufficiently complete to enable the patients in the majority of instances to resume their former occupations.[8]

Of the larger number of writers, particularly in Germany and Austria, and more recently in England, who, since 1919, have reported on the treatment of general paralysis by inoculation with malaria (or with relapsing fever), it will here be sufficient to refer only to those two who have published the most extensive series to date. Kirschbaum's[9] series includes 196 cases of general paralysis; of these, 123 patients, or 63 per cent. of the total, had remissions of varying grades; sixty-one were classed as having complete remissions (31 per cent.); forty-two as having fairly complete remissions (21 per cent.), and twenty as having slight remissions (11 per cent.); forty-five were unimproved; twenty-eight died, and ten relapsed after having a good remission.

Gerstmann has reported the results obtained by him in the treatment of 116 cases,[10] and more recently the results of treatment of 294 cases.[11] Of the latter group, 112 were considered as attaining good remissions (38 per cent.); ninety as exhibiting more or less incomplete remissions (31 per cent.), and ninety-two as entirely uninfluenced by treatment (31 per cent.).

The treatment of general paralysis by means of inoculation with malaria (or relapsing fever) is based on no known principle, and is of a purely empiric

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2. Wagner, Julius: Ueber die Einwirkung fieberhafter Erkrankungen auf Psychosen, Jahrb. f. Psychiat. **7**: 94, 1887.
3. Wagner von Jauregg, Julius: Ueber die Behandlung der progressiven Paralyse, Wien. med. Wchnschr. **90**: 2124 (Sept. 11) 1909.
4. Pilcz, A.: Ueber Heilversuche an Paralytikern, Jahrb. f. Psychiat. **25**: 141, 1905; Zur Tuberkulinbehandlung der Paralytiker, Psychiat.-neurol. Wchnschr. **11**: 431 (Feb. 26) 1909-1910; Zur Prognose und Therapie der Paralysis progressiva, Ztschr. f. d. ges. Neurol. u. Psychiat. **4**: 457, 1911.
5. Wagner von Jauregg: Ueber Behandlung der progressiven Paralyse mit Bakterientoxinen, Wien. klin. Wchnschr. **25**: 61 (Jan. 4) 1912.
6. Wagner von Jauregg: Ueber die Einwirkung der Malaria auf die progressive Paralyse, Psychiat.-Neurol. Wchnschr. **20**: 132 (Aug. 31) 1918; 251 (Jan. 4) 1919.
7. Wagner-Jauregg: Die Behandlung der progressiven Paralyse und Tabes, Wien. klin. Wchnschr. **34**: 171 (April 14) 1921.
8. Wagner-Jauregg: The Treatment of General Paresis by Inoculation of Malaria, J. Nerv. & Ment. Dis. **55**: 369 (May) 1922.
9. Kirschbaum, W., and Kaltenbach, H.: Weitere Ergebnisse bei der Malariabehandlung der progressiven Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiat. **84**: 297, 1923.
10. Gerstmann, J.: Ueber die Einwirkung der Malaria tertiana auf die progressive Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiat. **76**: 242, 1922.
11. Gerstmann, J.: Ueber den jetzigen Stand der Malariatherapie der progressiven Paralyse, mit besonderer Berücksichtigung neuerer Erfahrungen, Ztschr. f. d. ges. Neurol. u. Psychiat. **91**: 235, 1923.

character; the mode of action of intercurrent suppurative or febrile conditions in bringing about a degree of clinical improvement in a certain proportion of cases, not only of general paralysis but also of postencephalitic conditions [12] and occasionally of other disorders of the central nervous system, is quite unknown. It has been suggested that the phenomenon is due to an influence of a biologic order; [13] that malaria, for example, calls forth the production of antibodies or other substances which act with some effectiveness against the original *causa morbi;* but the purely speculative character of this suggestion is obvious.

It has been supposed that the high degree of body temperature produced, especially by malaria, is the factor chiefly, even if not solely, responsible for the favorable effect exerted by the intercurrent infection. Against this supposition lies the fact, at least in the case of general paralysis, that the thermal death point of the spirochete is 56 C. continued for ten minutes, although it is stated that the organism fails to grow at temperatures in excess of from 40 to 41 C. (104 to 106 F.). On the other hand, it is possible that the experiments of Weichbrodt and Jahnel have some bearing on the matter; for these investigators found that the complete disappearance and death of spirochetes present in scrotal chancres in rabbits could be brought about by the exposure of animals so infected to temperatures of from 42 to 43 C. (107.6 to 110 F.), provided such exposures were repeated not less than three times.[14] It likewise appears somewhat suggestive that Wagner von Jauregg obtained what would seem to have been progressively better results in the treatment of general paralysis as he employed increasingly effective febrifacients.

It may be of passing interest in this connection to note the statement of Delgado [15] that from ancient times it has been the custom of Peruvian natives suffering from uta—a leishmaniasis of the skin and mucous membranes—to repair to certain localities where malaria is endemic, the tradition being that after a number of attacks of malaria the lesions of uta cicatrize and are cured. If this is true, it presents a rather interesting analogy to the treatment of general paralysis with malaria in the effect of a febrile condition on a protozoal infection. Regarding the question, which naturally suggests itself, of the influence of intercurrent infections in syphilitic patients on the subsequent development or nondevelopment of general paralysis in such persons, observations are, in the nature of things, difficult to obtain; they would be particularly valuable in the light of our present certainty that in the future general paralytic patient the central nervous system is seriously involved within the first year or eighteen months after the initial infection.[16] It is true that Mattauschek and Pilcz, referring to their series of 4,134 army officers who acquired syphilis between 1880 and 1900, state that among the 195 who subsequently developed general paralysis there was not one who gave a history of having had an acute infectious disease, such as malaria, pneumonia and erysipelas, during the first few years after acquiring the syphilitic infection; [17] whereas of 241 syphilitic patients who had an acute infectious disease during that period, not one developed general paralysis.[18] But this evidence, of a negative or otherwise not altogether satisfactory character, would seem to be to some degree controverted by Kirschbaum's [19] report of the presence in his clinical material of ten general paralytic patients who had had malaria during the secondary stage of their syphilis.

METHOD OF TREATMENT

Our experience with the treatment of general paralysis by inoculation with tertian malaria began in June, 1923; up to the present time (November, 1924), fifty-three patients have been inoculated. Our cases have been selected only in the sense that we have excluded far advanced, emaciated, or more or less moribund patients, and also patients in whom language difficulty interfered seriously with the making of a satisfactory mental examination or the obtaining of an adequate anamnesis from the informants; otherwise they were transferred to the male service of the Psychiatric Institute as they were admitted to the reception service of the Manhattan State Hospital.

In all our cases, the diagnosis of general paralysis could be made with a reasonable degree of certainty; all presented psychotic symptoms necessitating their commitment to a state hospital. After a somewhat variable period of observation, which included a weekly record of the weight and usually two, occasionally three, lumbar punctures, patients were inoculated intravenously with typed citrated blood (from 1 to 1.5 c.c.) obtained from a patient already under treatment; it was not found necessary to obtain blood from the donor in connection with an actual malarial paroxysm.

In the exclusive use of the intravenous method of injection, our procedure has differed from that of the majority of European clinics; we have preferred this method, which in our experience has presented no drawbacks, because of the practical certainty of a "take," and because of the shortened and more uniform duration of the incubation period (usually from three to seven days, averaging five days in fifty-one patients, of whom thirty-three had an incubation period of five, six or seven days), as compared with that obtaining with the subcutaneous method of inoculation practiced abroad (from nine to seventeen days or more). We have avoided the use of arsphenamin following the completion of malarial treatment, as employed by Wagner von Jauregg and others, in order that we might not thereby complicate the therapeutic picture. We have allowed each patient to have between eight and twelve definite febrile attacks, after which the infection is terminated by the administration of quinin sulphate in doses of 10 grains (0.65 gm.) three times a day. Although we have continued quinin medication invariably over a period of one week, so efficient is this drug in dealing with "inoculation malaria" that but three patients have had an attack of fever subsequent to the first day of quinin administration. Temperatures were taken hourly when above 100 F.; otherwise, every three hours.

Other writers have remarked on the atypical and irregular course often run by inoculation malaria, and

12. Herschmann: Verhandl. d. deutsch. Gesellsch. f. inn. Med. 35: 76, 1923.

13. Plaut, F.: Neuere Probleme der Paralyse und Tabestherapie, Deutsch. med. Wchnschr. 45: 1321 (Nov. 27) 1919.

14. Weichbrodt, R., and Jahnel, F.: Einfluss hoher Körpertemperaturen auf die Spirochäten und Krankheitserscheinungen der Syphilis im Tierexperiment, Deutsch. med. Wchnschr. 45: 483 (May 1) 1919.

15. Delgado, H. F.: Treatment of Paresis by Inoculation with Malaria, J. Nerv. & Ment. Dis. 55: 376 (May) 1922.

16. Moore, J. E.: The Genesis of Neurosyphilis, Arch. Dermat. & Syph. 4: 55 (July) 1921.

17. Mattauschek, E., and Pilcz, A.: Beitrag zur Lues-Paralyse-Frage, Ztschr. f. d. ges. Neurol. u. Psychiat. 5: 133, 1912.

18. Mattauschek, E., and Pilcz, A.: Zweite Mitteilung über 4,134 katamnestisch verfolgte Fälle von luetischer Infektion, Ztschr. f. d. ges. Neurol. u. Psychiat. 28: 608, 1913.

19. Kirschbaum, W.: Ueber Malaria- und Recurrensfieber-Behandlung bei progressiver Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiat. 98: 635, 1922.

our experience has proved no exception. The attacks of chills and fever rarely take place only every other day; far more frequently they are from the first, or soon become, diurnal in occurrence. On the other hand, three or four days sometimes elapse between febrile attacks. In one instance, there occurred a free interval of eleven days, and in another case an interval of six days, between attacks, during which plasmodia were demonstrable in the blood; these intervals were then succeeded by paroxysms of greater intensity than before. With successive passages from patient to patient, however, the course of the infection tends to become more regular, in our experience. In two patients, the infection apparently died out after five and six paroxysms, respectively; the injection of 0.5 gm. of sodium nucleinate in 10 per cent. solution, as employed by Kogerer,[20] was not successful in either case in reestablishing the attacks.

TABLE 1.—*Height of Temperature Reached in Four Hundred and Seventy Attacks of Inoculation Malaria*

Temperature reached 104 F. or higher in	387, or 82%
Temperature reached 105 F. or higher in	284, or 60%
Temperature reached 106 F. or higher in	223, or 47%

PYREXIA

Mention may be made in passing of the height of temperature reached in the malarial paroxysms and of the duration of the febrile period. The connection between this aspect of the treatment and one of the theories of its modus operandi led us to study 470 attacks of malaria from the standpoint of the maximum temperature, as recorded hourly, attained in them. Table 1 shows the percentage of the total number of febrile attacks in which temperatures of 104, 105 and 106 F. were reached.

Although we have so far worked with only two "strains" of plasmodium—i. e., with blood obtained from two cases of tertian malaria—there proved to be a very marked difference between the two with respect to the height of temperature produced (Table 2).

Plasmodium C, in use by us at present, has now undergone twenty-two passages from host to host, and in this process appears to have developed a definite increase in "virulence," if the intensity of the febrile reaction produced can be considered a criterion; when the first eighteen patients inoculated with this strain are compared with the second eighteen, it is seen that in the former a temperature of 106 or above was reached in 33 per cent. of their 158 attacks, while in the latter this temperature was attained in 92 per cent. of their 182 attacks.

COMPLICATIONS

Serious complications have not been encountered. Herpes labialis has, naturally, been present in more than half of our cases. A mild degree of generalized jaundice has characterized about one third of the cases, appearing at the time of the fifth to the seventh or eighth attacks of malaria. Two patients developed a moderate edema of the ankles, which subsided spontaneously within two weeks. A rather marked degree of anemia appeared, as might be expected, in all our patients; recovery from this took place within approximately two weeks without treatment. Most of the patients lost weight; five out of thirty-six lost no weight; two patients lost 16 pounds (7.3 kg.) each; the average loss of weight among the thirty-six patients considered was 7 1/10 pounds. Certain observations which we have made suggest that such loss of weight is perhaps in part a matter of dietary control.

CONVULSIONS

Although hardly to be classed as a complication, general paralytic convulsions have presented a feature of possible significance in relation to malarial treatment, which even in our limited series of cases seems to lie outside the sphere of coincidence and which at any rate appears to warrant further investigation. Five of our general paralytic patients entered the hospital with a history of typical general paralytic seizures, their most recent convulsion having occurred nine days, forty-eight days, fifty-nine days, seventeen months and twenty-eight months, respectively, prior to inoculation with malaria. Not one of these five patients failed to have at least one convulsion during the actual course of the malaria; or, in one case, within two weeks of the final attack of malaria. Three patients died as a direct result of their seizures; the two remaining patients have now survived one month and six months, respectively, without the recurrence of convulsions. On the other hand, two patients, who, so far as is known, had never had a general paralytic seizure prior to admission, developed convulsions, one during the course of malaria, and the other on the seventh day following the final attack of malaria; two months and three and one-half months, respectively, have now elapsed without the recurrence of seizures.

CLINICAL RESULTS

The total number of patients inoculated with malaria up to the present time is fifty-three. Eleven of these have completed treatment within the last two months, and accordingly no definite opinion as to the outcome can as yet be entertained; for in our experience some four weeks from the date of the final attack of malaria is the minimum period in which evidence of clinical improvement becomes manifested, while the lapse of two or three months, or occasionally even rather longer, is necessary for the full development of such mental improvement as is to take place. Six patients died either during treatment or, in one case, within a month of completing the course of malaria. Three of these patients died as a direct result of convulsions; these have already been referred to. The remaining three, none of whom came to necropsy, had advanced cases of general paralysis, one of them in a distinctly emaciated condition; there was no definite ground for supposing that the malaria was the immediate cause of death, although it is not improbable that the infection was instrumental in hastening their demise. Two patients received two courses of malaria each, the second being given some six months after the first in both instances. One patient failed to acquire malaria after four widely separated intravenous inoculations

TABLE 2.—*Height of Temperature Produced by Plasmodium A (in 125 Attacks) as Compared with That Produced by Plasmodium C (in 340 Attacks)*

	A	C
Temperature reached 104 F. or higher in	58%	91%
Temperature reached 105 F. or higher in	23%	80%
Temperature reached 106 F. or higher in	3%	64%

20. Kogerer, H.: Ueber die Probe mit Natrium nucleinicum bei der Malariabehandlung der Paralytiker, Wien. klin. Wchnschr. 35:342 (April 13) 1922.

with malarial blood, although on each occasion a second patient inoculated at the same time developed malaria in the usual manner. If these twenty are subtracted from the total number inoculated, there remain thirty-three cases for present consideration.

Of these thirty-three patients, one, an advanced general paralytic, whose condition was of three and one-half years' standing at the time of admission, died eight months after completing treatment, and four months after a slight remission of five weeks' duration. Fourteen patients are classed at the present time, from three to fifteen months after the completion of treatment, as unimproved or slightly improved. Eighteen patients are considered as much improved; seventeen of them have been discharged from the hospital and the eighteenth is about to be discharged, and fourteen of them have returned to their former occupations; of the remaining three, two, recently paroled, appear fully capable of resuming active work, but in the case of the third patient, a lawyer of standing, discharged six months ago, the question of his reentering practice has been deferred.

We have thought it more conservative, and perhaps more logical as well, to separate the fairly homogeneous class of those who are much improved, who have thus far exhibited remissions of a more or less complete degree, from those whose clinical outcome has been less favorable, irrespective of the fact that some degree of mental improvement is nevertheless discernible in certain of the latter; in a word, those patients who do not show good remissions are not counted as having remissions at all, although of the fourteen unimproved cases at least three would almost certainly be regarded by the standards of the European clinics as having "fairly good" remissions, and an additional two as having "slight" remissions. On the other hand, only one of the fourteen—a patient who had a spontaneous remission followed after ten months by a relapse—can be said, four months after completing his course of malaria, to be definitely worse than before treatment.

TABLE 3.—*Clinical Outcome of Thirty-Nine Cases*

Died during treatment (5) or within a month of completing treatment (1)	6	7
Died eight months after treatment	1	
Unimproved (10) or slightly improved (4)		14
Much improved		18
Discharged, 17; at work, 14		39

The outstanding characteristic of the eighteen much improved cases is the really excellent degree of insight into their previous and present mental condition which, without exception, they exhibit. Less dramatic, but nevertheless well marked, is the improvement in retention and in the performance of intelligence tests of the Terman type. Memory for recent events regains an acceptable level, although a persisting partial or complete amnesia for some period of the actual psychosis is, as indeed might be expected, not infrequent. A striking feature is the marked sense of well being which rather the majority of these patients experience—to be distinguished, needless to say, from the morbid elation of the disease itself; some of them state that they have not felt so well for a number of years. It is not to be understood, on the other hand, that these patients are free without exception from residua of any kind; yet, with the exception of one moderately advanced general paralytic patient of distinctly borderline intelligence, who, without much doubt, continues to exhibit some defect in the intellectual sphere, and except for the lawyer referred to above, who shows certain minor but persistent defect symptoms of a mental character, these residua consist almost exclusively of slight defects or abnormalities on the emotional level. At the worst, this may consist of some persistence of emotional instability. The lesser manifestations might be described as in some instances a tendency to mild and transitory depression; in other cases as a certain sobering, so to put it, of the outlook of the individual, and in still others as a diminution of former initiative. Nevertheless, these eighteen patients are, save as stated above, capable of resuming their previous occupations, and fourteen of them, discharged from one to ten months ago, have actually done so.

Improvement in physical signs has been less marked on the whole than some of the reports from European clinics would have led us to expect. It so happens that speech defect has not been a very prominent feature in the majority of our cases; whereas, therefore, a certain degree of improvement has been indubitably evident in all but one of the few cases in our series in which this symptom was present to any noteworthy degree, we are unable to follow Wagner von Jauregg,[8] for example, in the emphasis that he places on the susceptibility of speech defect to improvement under malarial treatment. No change in the reflexes has been observed in any of our cases; one single patient exhibited at the end of nine months a possible degree of improvement, open, of course, to some question, in the reaction of the pupils to light. On the other hand, the degree of improvement in the ataxia of our three patients with taboparalysis has been rather striking; in one of them the improvement has been only moderate, although absolutely definite; but the other two, from being practically unable to walk in safety without assistance, now get about in a decidedly active manner. Curiously enough, not one of these three patients, all treated more than a year since, has evidenced the slightest degree of mental improvement.

A noteworthy feature characterizing the clinical course of these patients following their treatment with malaria has been the gain in weight which without exception they have exhibited—a point to which Wagner von Jauregg called attention[8] without, however, giving specific data. Thirty-two patients gained an average of 20½ pounds (9 kg.) apiece in the three months following the completion of treatment, a gain which was computed on the basis of the weight at the end of the course of malaria and hence a weight somewhat lower, it is true, than that of the pretreatment period. The majority of patients gained proportionately by far the larger fraction of the total during the first eight weeks succeeding treatment, as shown by the fact that the average gain for this period was 14⅞ pounds (6.6 kg.); on the other hand, not a few patients presented striking exceptions to this rule.

That this gain in weight was for the most part maintained, and in some cases even added to, is evidenced by the fact that the first nineteen of these patients gained an average of 23 pounds (10.4 kg.) for the six months' period following the completion of treatment; in other words, a still further gain in weight on the part of some patients more than offsets the losses sustained chiefly by those patients who went home, returned to work, and otherwise lived under different dietary and other conditions. Considering only the gain in weight at the end of a three months

period, since this represents nearly the maximum increase and was registered under identical conditions, the range of this gain varied from 2 pounds (0.9 kg.) to 39 pounds (17.7 kg.) And in spite of the fact that the only patient whose gain in weight was insignificant belonged to the much improved group, it appears that a rough correlation exists between gain in weight and ultimate mental improvement; for the average gain in thirteen patients in the unimproved and slightly improved group was 15 pounds (6.8 kg.), as compared with an average gain in seventeen patients in the much improved group of 25½ pounds (11.5 kg.).

If the thirty-three cases here under consideration are divided according to the so-called clinical types of general paralysis, it may be said that eleven belong to the simple dementing type, of whom nine fall into the unimproved group and only two into the much improved category. In view of the very slight tendency of cases of this type to spontaneous remission, the fact that even two out of eleven of our cases exhibited complete remissions is perhaps not unworthy of note; and Gerstmann [11] in his large series found that the proportion of remissions among cases of the simple dementing type was by no means inconsiderable. One of these two cases, the patient of borderline mentality already referred to, is perhaps our poorest complete remission, it is true; on the other hand, of the four cases considered "slightly improved," two are of the simple dementing type. Twelve cases of the expansive type contribute seven to the much improved group; four are unimproved or slightly improved (two each); one died eight months after treatment. Six cases of the manic type, characterized by very definite psychomotor activity in addition to a more or less conspicuous expansive trend, all fall into the much improved group. Other types, numbering four in all, include a paranoid patient who is essentially unimproved, and three patients difficult to fit into any of the clinical categories named, all of whom exhibit excellent remissions.

SEROLOGIC RESULTS

It is generally agreed that no parallelism between clinical outcome and serologic findings is to be encountered in cases treated by inoculation with malaria—an experience not at variance with that of other methods of treatment. Our series of cases has shown a similar absence of accord between the two, at least in the sense that a patient with a most definite remission may show very little improvement in the spinal fluid findings, while, conversely, three of our cases with spinal fluids which have become almost completely negative are each one of them entirely stationary and unimproved in a clinical sense. At the same time, there has been evident a certain degree of correlation between clinical and serologic improvement, if the data furnished by thirty-two cases are not so few as to make this correlation more apparent than real. At all events, this much may be said: Of ten cases with spinal fluid findings essentially unchanged, seven belong in the unimproved group and only three among the much improved; conversely, of five cases in which spinal fluids have become negative (the gold curve remaining unchanged, however, in two of these), only one belongs in the unimproved and four belong in the much improved group; finally, of seventeen cases in which the spinal fluid findings as a whole have become more or less modified following treatment, seven belong in the unimproved group (one patient dead) and ten are among those exhibiting a complete remission. Moreover, a certain prognostic significance not usually attached to the colloidal gold reaction would seem to be suggested by our experience that this reaction was definitely modified in two cases and unmodified in eleven cases belonging to the clinically unimproved group, but modified in nine cases and unmodified in eight cases in the group of complete remissions. In fifteen cases (out of twenty-nine), the Wassermann reaction in the blood has remained unchanged; in nine cases it has become negative with an alcoholic antigen while remaining positive with a cholesterinized antigen; and in five cases it has become negative with both antigens.

As a matter of fact, the foregoing is to some extent an understatement of the actual influence of malaria treatment on the serologic findings, for in an appreciable proportion of the cases on which these data are based, a period of less than six months has elapsed since the completion of treatment, and in the majority of cases this period is less than a year—a fact which considerably influences the estimate of the results; for our limited number of observations suggests—what the large series of Gerstmann [11] more conclusively indicates—that the spinal fluid findings undergo modification after malarial treatment in a more or less gradual manner, and only after the lapse of considerable time.

TABLE 4.—*Serologic Versus Clinical Outcome*

Spinal Fluid Findings	17 Much Improved	14 More or Less Unimproved	1 Died	Total
Essentially unchanged	3	7	..	10
Definitely modified				
(a) Except for colloidal gold	3	5	1	9
(b) Including colloidal gold	7	1	0	8
	10	6	1	17
Negative (except for colloidal gold)	4	1	..	5
	17	14	1	32
Wassermann reaction in the blood				
Unchanged				15
Modified				14
One antigen positive				9
Both antigens negative				5

If the serologic data obtained at an interval of three months, six months and one year subsequent to the completion of malarial treatment are noted in the six patients who received treatment more than a year ago, and in whom no treatment of other character has been employed, it is seen that at the end of a year the cell count has become normal in all six, while at the end of six months it was normal in only four and at the end of three months in only three. At both three months and six months the globulin was unchanged in one case and negative in one, but at the end of a year it was unchanged in none and negative in three. At both three months and six months, likewise, the Wassermann reaction was unchanged in one case and modified in five, while at the end of a year it was unchanged in none, modified in five and negative in one. The colloidal gold curve was unchanged in five cases at the end of three months, in four cases at the end of six months, and in only one case at the end of a year; while it had become more or less modified in only one case after three months, in two cases after six months, and in five cases at the end of a year.

These results suggest not only that positive spinal fluid findings tend to become more or less slowly modified in the course of six months to a year or more subsequent to treatment, but that the cell count is the most quickly and easily affected, and the Wassermann

reaction is the most resistant, while the colloidal gold curve becomes very slowly but eventually modified in the majority of instances, and the globulin, although quickly reduced as a rule, becomes negative only very slowly and in only a certain proportion of cases.

The Wassermann reaction in the spinal fluid may be considered the most refractory feature of the total picture in the sense that, although it usually undergoes some reduction more or less immediately, it seldom becomes completely negative. Our most usual experience has been that even at the end of a year or longer the reaction is still positive (from + + to + + + +) in 1 c.c. of spinal fluid, though negative in 0.5 c.c. It would perhaps be more logical to regard the colloidal gold curve in the same light, for in the five cases in which the curve was reduced at the end of a year, this reduction was slight to moderate in four, the reaction becoming completely negative in only one. It might be added that in degree of modification the colloidal benzoin reaction invariably lagged behind the gold and was negative only in the single case in which the gold was negative. The Wassermann reaction was still positive with a cholesterinized antigen at the end

TABLE 5.—*Modification in Serologic Findings Three Months, Six Months, and One Year Subsequent to Malarial Treatment*

	Three Months 29 Cases	Six Months 19 Cases	One Year 5 Cases
Cells			
Unchanged	5	1	0
Reduced	10	5	0
Normal	14	13	5
Globulin			
Unchanged	8	2	0
Reduced	16	13	3
Negative	5	4	2
Spinal Fluid			
Unchanged	8	2	0
Modified	19	14	4
Wassermann reaction negative	2	3	1
Colloidal Gold			
Unchanged	21	9	1
Modified	8	10	4

of six months in four cases, and with both antigens in one case; at the end of a year it had become negative with both antigens in one case and at the end of fifteen months in a second.

Our results, taken together with those already reported in the literature, have confirmed us in the belief that the method of treatment by inoculation with tertian malaria is a method of indubitable value in the treatment of general paralysis. It appears undeniable that, in some manner not as yet clear, this therapeutic measure definitely arrests the clinical progress of the disease in a considerably larger proportion of instances than would ever exhibit remissions of the spontaneous type.

That the efficacy of this method of treatment in arresting the usual progress of the disease may be actually greater than it appears to be when measured by the more or less fortuitous criterion of clinical improvement does not seem inconceivable, and should direct attention to and further observation of the cases which have shown little or no outward improvement but which, in a not unnoteworthy proportion of instances, have become quite definitely stationary from the mental and conspicuously so from the physical standpoint. The selective action, so to speak, of malaria treatment among the clinical types of general paralysis is obviously also a matter for further scrutiny; but that treatment is least successful in cases of the simple dementing type is perhaps less remarkable than that the proportion of cases even of this type which are favorably affected is apparently not inconsiderable.

Finally, the mental recovery with complete regaining of insight on the part of a certain not insignificant proportion of general paralytic patients opens a field for the study of the onset and evolution of the disease, at least from the subjective standpoint of the patient, and of the distinction between true dementia and dementia more apparent than real, which has been almost completely closed to us heretofore.

SUMMARY

Between June, 1923, and November, 1924, fifty-three unselected patients with general paralysis, in the male service of the Psychiatric Institute, have been inoculated with tertian malaria.

Of the fifty-three patients inoculated, eleven have been treated too recently to allow an expression of opinion; two received a course of malaria on two separate occasions, and one failed to acquire the infection after repeated inoculation.

Of the thirty-nine patients remaining, six died during the actual treatment (five) or within a month of its completion (one), and one died eight months subsequent to treatment, after a slight remission of five weeks' duration. Three of the group of six died as a direct result of convulsions; in the case of the other three, death may have been hastened, but was hardly directly caused, by the malaria.

Of the thirty-two patients now alive at the end of from three to thirteen months from the conclusion of treatment, fourteen are considered as either unimproved or more or less improved (only one of these fourteen is definitely worse), and eighteen are considered as much improved and may be regarded as exhibiting fairly complete remissions, with a residual mental defect, save in the case of perhaps two patients, either undemonstrable or of the slightest possible degree. Seventeen of these patients were discharged from the hospital from one to ten months ago, and fourteen have returned to their former occupations.

Our results, completely confirmatory of the data of similar type already published, lead us to believe that treatment of general paralysis with malaria is unquestionably a method of value. And we believe that the proportion of cases in which the disease appears to be brought to a standstill as judged by clinical criteria, in addition to the proportion in which a striking degree of mental improvement comes about, is in itself not without possible significance.

Calcium Deficiency and Disease.—There seems little doubt that deficiency of calcium is liable to occur in the adult urban population, and that many people, especially pregnant and nursing women, suffer in health thereby. There are also grounds for the belief that a deficiency of calcium and iron, and, in some inland districts, of iodin, is a common cause of malnutrition in children. Fortunately, these deficiencies can be made good by the use of foodstuffs whose health value has been amply demonstrated by long practical experience. Green vegetables and fruit supply both calcium and iron, and yield the necessary excess of bases. Milk is the best and most convenient source of calcium. The supply of iodin can be assured by the use of cod liver oil, iodized salt or green vegetables, except those grown in districts where the soil is lacking in iodin. It is interesting that those foodstuffs which the results of modern research suggest as being of special value for the maintenance of health are those which have been recommended by experienced physicians for many generations.—Orr, J. B.: *Practitioner* **114**:39 (Jan.) 1925.

PAROXYSMAL TACHYCARDIA IN MIGRAINE

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Our purpose is to call attention to a relationship between certain cases of paroxysmal tachycardia and migraine. The conception arose from the observation of the frequent association of paroxysmal tachycardia with other manifestations of migraine. The idea was further enforced by the growing realization that migraine is a fundamental generalized constitutional disturbance, accompanied by definite physiologic and metabolic alterations in the tissues, and having as manifestations of these disturbances the various symptoms described in an attack, of which a sick headache is the most frequent.

We shall not consider at any length the various theories of etiology and the mechanism of production of an attack, but it should be pointed out that the condition is essentially a suboxidation—an inability of the tissues to utilize oxygen, in much the same manner that in diabetes the tissues fail to oxidize glucose. There is consequently an accumulation of acid products, as well as incompletely oxidized metabolites in the blood and tissues conducive to nerve and blood vessel irritability. The cyclic character of the condition suggests an accumulative process, with a relatively sudden, sometimes crisis-like, phenomenon followed at times by a period of unusual well being.

That the disturbance is active long before any premonition of an impending attack is shown by diarrhea or by a gastro-intestinal stasis, with vomiting of undigested food taken sometimes twenty-four or thirty-six hours before the onset of any symptoms, as well as a gradually increasing general tissue acidity and in some cases the appearance of ketone bodies in the urine preceding or early in an attack; i. e., before it could be a starvation phenomenon. The paroxysmal nature of the onset in many cases and the aggravation or precipitation of an attack by any factors of an emotional nature are suggestive of asthma. On this and other bases, migraine is considered by many as an allergic phenomenon, and some success in treatment is shown with the use of foreign protein and peptone for nonspecific desensitization.

What is the relation between the fundamental constitutional disturbances in migraine and the symptoms in an attack of migraine? Clearly, these symptoms are the manifestation of sympathetic and autonomic nervous system disturbances manifested in an extreme or violent manner. An analysis of the widely variant symptoms shows them to be mostly related to vagus or vasomotor influences, and we look for the explanation of the symptoms through the functions of these systems. Vagal disturbances are mostly symptomatic in their effects—gastric, respiratory or cardiac discomfort with only slight mental disturbance, though continued vagal pressure gives rise to symptoms of air hunger, deep and labored inspiration, precordial uneasiness, gastric discomfort, vomiting, marked apprehension and syncope.

In the vasovagal attacks so well described by Gowers, there is simply an emphasis of the vasomotor activity or irritability, as well as organic symptoms from the vagus. Thus we have circulatory manifestations, such as localized or symmetrical coldness, pallor and a small pulse, at the same time as gastric symptoms of fulness and distress, ascending to the chest but not to the throat or neck, respiratory distress, orthopnea and cardiac discomfort, stopping or altering of rhythm and rate, pain and apprehension.

In these attacks, consciousness is not impaired, but there is a slowness of mental function, lack of concentration, slowness in speech, and a sense of unreality or micropsia, with objects seeming small and far away. These symptoms are naturally suggestive of the prodromes of a migraine attack, which include, in addition, the visual phenomena of scotoma, luminous, scintillating spots, zigzag prismatic colors and loss of vision (total, partial or symmetrical), as well as aural gustatory and cutaneous phenomena. We realize that there is no organic eye disease in this temporary loss or perversion of vision.

In the study of a series of cases of paroxysmal tachycardia, we were impressed with the similarity of the cardiac disturbance to the various organic manifestations in the prodromes of a migraine attack or in the vasovagal attack. Further investigation of these cases has led us to conclude that paroxysmal tachycardia may be a cardiac migraine, or the cardiac manifestation of a migraine attack. These cases have been studied clinically with great care, electrocardiograms have been obtained during and between attacks, and analytic histories have been taken.

As in typical migraine patients, the hereditary factor is frequently present, usually of headaches rather than of the tachycardia. Attacks are brought on by the same factors as in headache—fatigue, strain, shock, worry and emotional factors, as well as the usual toxic effects of infection, alcohol and tobacco. In no case have we been able to find that these attacks are not substitute manifestations for the old sick headache.

The visual and vasomotor prodromes are frequently present, though usually very brief and relatively mild, with a feeling of apprehension or malaise, giving the patient sufficient warning to permit his lying down or preparing for the attack. Often, however, the preliminary signs are so brief as to be confused with the onset of the actual attack—a momentary vertigo; sense of impending danger; a sudden alteration of the heart's rhythm, as in the vasovagal attacks; a few forcible beats with long intervals between, followed by the rapid pulse and the full attack.

Usually, patients have had a previous migraine history and have developed the tachycardia with relief from the sick headaches, often with the usual prodromal warnings, the conviction that a sick headache was impending, but the tachycardia appearing. Cases of this type may thenceforth exhibit only the cardiac attack, may remain as tachycardias for a time, then revert to the sick headache, this alteration taking place several times within a few years, or the headache and the tachycardia may alternate, regularly or irregularly.

Particularly interesting are two cases in which there have always been the typical sick headaches, but which, from definite times, start quite as usual and develop the hemicrania, which stops abruptly and entirely, giving place to an attack of paroxysmal tachycardia, with a short interval of freedom from headache.

In cases in which the tachycardia definitely supplants the sick headache, the prodromal symptoms usually are much shortened, but are recognized as such. In other cases, however, onset of the paroxysmal tachycardia is abrupt in a person who had been previously well. In

these, the prodromes must be more carefully looked for, and the patient instructed to observe the preliminary symptoms preceding, before they can be definitely recognized.

These cases, apparently primary in themselves and not the substitutes for a sick headache, do not appear without sufficient cause, but, as in the cases of migraine appearing abruptly, can be shown to depend on exactly those factors which might be expected to precipitate a latent sick headache.

As in the more usual migraine, so in these tachycardias, attacks may under favorable circumstances be aborted or fail to materialize, the patient going through the preliminary sensations, which convince him that an attack is due, experiencing the bradycardia and having a brief flutter, or none at all.

Therapeutically, these cases respond as the classic migraines do. A few have had apparent cures by the intravenous injection of peptone; more have responded to a program of rest, avoidance of fatigue, removal of emotional elements, a regulated outdoor life, sedatives and alkali. Some persist in spite of treatment and subside apparently spontaneously, occasionally reverting to the headaches.

We have been careful to eliminate all cases in which there is the slightest evidence, clinically or electrocardiographically, of organic heart disease. The electrocardiographs obtained during attacks show only an increased rate with no disturbance of the curve. In the consideration of migraine we have, of course, adhered to the generally accepted conception of the condition, rejecting all cases that were not entirely typical in their histories and in the attacks. We do not accept, however, the dictum that true migraine must be absolutely periodic in its attacks, as some state. From the fundamental nature of the condition there is no reason why it should be absolutely periodic; in fact, most true migraines vary in frequency as well as severity, as a result of external factors; and we believe that these cases, otherwise characteristic, which are so affected, or which may be precipitated by unfavorable circumstances, should be classed as migraine.

REPORT OF CASE

N. N., a man, aged 34, came into the office, May, 1923, with an attack of paroxysmal tachycardia that began on the street. His medical history had no points of interest, but the family history revealed migraine in his father, one paternal uncle, one paternal aunt, one brother and one sister.

He had had migraine attacks since the age of 14, at first mild, short and infrequent, but for the last four years severe, lasting one or two days, totally disabling him and occurring every eight to ten days. The attack was always preceded by prodromes, usually visual, such as hemianopia, flashes of yellow light, and a dimness of vision, as if a curtain were being pulled down by jerks. His wife could foretell an attack by twelve hours, because of dryness of his lips and skin and a peculiar facial expression. The attack was usually a left hemicrania, with nausea, vomiting and severe prostration.

The tachycardia began in March, 1923, while driving his car in spite of an impending attack of migraine. He first felt a tight, drawing sensation in the palms of the hands, gradually extending to the chest, followed by tingling in the feet. Then his heart gave three or four hard, slow beats, seemed to stop, and then began to beat very rapidly, his entire body seeming to vibrate. There was a sensation of choking and smothering, and he felt he was dying. After about fifteen minutes, the attack subsided suddenly, leaving his hands and feet cold and clammy, profuse prostration, and a feeling of weakness and trembling followed later by marked diuresis. In a drug store, he saw that his face was pale, his lips and fingers blue.

Since this attack two months before, he had no headache, but several severe tachycardial attacks. Seen in the office during an attack, the cardiac rate was 180 and regular, the pulse of poor quality, the systolic pressure 95, the diastolic 75, and the cardiac outline entirely within normal limits. Electrocardiograms made during the attack were entirely normal, except for the increase of rate, as were other tracings made between attacks.

SUMMARY

We consider migraine to be a profound, generalized, constitutional disturbance of physiology and metabolism, manifesting itself most frequently as a sick headache, but also affecting the vagal and vasomotor irritability and equilibrium, and causing through them cardiac, general circulatory, respiratory, visceral, visual and mental disturbances.

CONCLUSIONS

Paroxysmal tachycardia may be the cardiac manifestation of migraine, occurring in those patients and in those circumstances wherein sick headaches might occur, and may be the only manifestation of migraine, may replace entirely the sick headaches, may alternate, either in succession or over periods, and may, during an attack of sick headache, entirely replace it and end it as a tachycardia.

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OPTIC NEURITIS IN INFANTILE PARALYSIS

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In a recent case I noted a complication of infantile paralysis that seems worthy of consideration. Changes in the optic disk have been found in a great many of the acute infections,[1] such as meningitis, scarlet fever, typhoid, influenza and rheumatism, and they are also found in many neurologic conditions, but rarely have they been reported in infantile paralysis.

REPORT OF CASE

History.—F. L., a youth, aged 18, white, student, a patient of Dr. C. R. Wylie of Pottstown, Pa., was taken ill rather suddenly, Oct. 11, 1922, with severe frontal headache. This persisted three days, when he was sent to the school infirmary. The temperature reached 103.4 F. on the third day and dropped to normal on the sixth day. After he had been at the infirmary three days, during which time the headache persisted together with some nausea and vomiting, the patient began to show loss of power in both arms. This increased up to the seventh day after admission, when he showed complete paralysis of both arms. There was some pain in the region of the shoulders, and "tenderness along the nerve trunks" of the arms. With the onset of the paralysis, the headache and gastro-intestinal symptoms abated. After about four weeks there appeared some slight power scattered over the muscles of the hands and arms. At about this time the patient tried to read, but noted that the type was blurred.

Six weeks after the onset, the patient was referred by Dr. Wylie for treatment of the paralysis to Dr. R. W. Lovett of Boston, to whom I am indebted for the opportunity to report the case.

Physical Examination.—December 8, the pupils were equal, symmetrical, and reacted normally to light and in accommodation. Extra-ocular movements were normal. There was a moderate but distinct swelling of both optic disks. The retinas were normal, the veins slightly dilated. No paralysis of any of any of the facial muscles was demonstrable. The throat was clear. The heart and lungs were normal. The

1. Monographic Medicine 4: 366.

blood pressure was: systolic, 110; diastolic, 80. Aside from rather marked paralysis of the abdominal muscles, the findings in the abdomen were negative. There was a paralysis involving both upper extremities, together with the muscles of the shoulder girdle. Sensory examination was negative.

Treatment and Course.—The patient was referred by Dr. Lovett to Dr. Peter Hunter Thompson for examination and treatment of the eyes. Dr. Thompson reported, December 16, that examination of the fundi shows signs of slight optic neuritis, both eyes, a little more marked in the right. Dr. Thompson added: "From his history and my examination, I should say that the condition in his eyes is, and has been, improving. I consider the changes in his eyes are entirely due to his general condition, and as that improves I would expect his eyes to do likewise."

Jan. 17, 1923, Dr. Thompson reported that the optic neuritis was improving, although there was still some blurring of the outline of the optic disks. The field of vision was a little more contracted in the right eye than in the left. The right was the eye in which the changes were more noticeable. The field for colors was not taken in the left eye for fear of overtiring the patient.

May 5, Dr. Thompson found a distinct improvement, particularly in the field of vision for form. Vision was still normal as before in both eyes, and for all practical purposes the muscle balance of the eyes was normal. Tests showed 0.25 degree of left hyperphoria, but this was not considered sufficient to have any bearing on the case. The field for color in both eyes was not taken.

The patient was also referred to Dr. George R. Minot for general examination. Dr. Minot reported, Dec. 16, 1922, that the internal organs were in normal condition. Nothing was discovered that could be looked on as a complication of infantile paralysis, and Dr. Minot believed, as did Dr. Thompson, that the eye changes were due to this disease and that they would progressively improve.

Examination of a twenty-four hour specimen of urine revealed: specific gravity, 1.026; albumin, most trivial trace with heat and acetic acid test, none with nitric acid; no sugar, no excess of indican, no diacetic acid. The sediment contained a rare leukocyte and a few oxylate crystals.

Examination of the stool revealed a formed brown stool with a definitely acid, but not markedly acid, reaction. There was a slight excess of gas formation. This was not at all marked. There was no offensive odor, no gross mucus, nor abnormal food particles. Microscopically, the food remains appeared normal in all respects. There were no tissue cells and no parasites. The stool suggested that the carbohydrates formed a generous part of the diet. The stool did not suggest a definitely pathologic intestinal indigestion.

Urine examination of a second twenty-four hour specimen showed no albumin, sugar, or abnormal elements in the sediment. The specific gravity was 1.022.

Blood examination revealed: hemoglobin, 90 per cent. The red cells appeared normal. The platelets occurred in normal numbers. The white count was 7,000. The differential count was as follows: polymorphonuclear neutrophils, 58 per cent.; polymorphonuclear eosinophils, 2 per cent.; lymphocytes, 36 per cent.; large mononuclears, 4 per cent.

COMMENT

Tedeschi [2] reported a case of infantile paralysis with scoliosis, paralysis of the left arm, and left facial hemiatrophy accompanied by atrophy of the left optic nerve. The paralysis had been of several years' duration. His study of the case was very thorough, and there seems to be no ground to question the authenticity of the diagnosis. At that time there were no other cases on record.

Wickman [3] observed double optic neuritis in a girl, aged 14 years, two months following an attack of infantile paralysis. In this case there was paralysis of both legs, both abdominal groups, weakness of the left arm, and weakness of the left external rectus muscle. The eye grounds showed on the left hazing of the nasal side of the disk. The disk was grayish red in the center, and on the right it was of a muddy grayish red, and apparently enlarged. The outline was indistinct.

In discussing his case, Wickman states that it may be possible that the inflammation spreads directly from the brain to the optic nerve and a true optic neuritis exists. This, he says, cannot be proved, but in one of his cases, the pathology of which was reported,[4] he found on the lower side of the optic chiasm definite round cell infiltration of the pia. This, he believes, might well be extended along the nerve to give rise to a true optic neuritis. No other pathologic observations bearing on the question of optic neuritis have been found in a thorough search of literature.

The complication of optic neuritis in infantile paralysis may be more frequent than the number of cases reported would indicate, as ophthalmoscopic examination has probably been omitted in the majority of cases of the disease in acute or subacute stages. The visual disturbance is only transient and may be easily overlooked. In the case here reported, the findings in the optic disk brought about a more detailed history of the acute illness, from which was obtained the story of a transient disturbance of vision.

Against this view of the possible frequency of optic neuritis, Müller,[5] who examined some fifty cases of infantile paralysis during the acute stage and who found no evidence of optic neuritis, states that an optic neuritis or choked disk speaks strongly against Heine-Medin's disease; but he further points out that Wickman has observed inflammatory changes in the pia about the sensory decussations, which would point toward a possible inflammatory basis for the condition. There is also the following statement from the monograph of the Rockefeller Institute:[6] "The eye grounds were examined in many of our cases, but we found no abnormalities of the optic nerve."

In our routine examination of approximately 125 cases of infantile paralysis during the last twenty months, no other cases of optic neuritis have been found. Examination of thirty cases of infantile paralysis at the New England Peabody Home for Crippled Children failed to reveal any cases showing eye ground changes.

In the case here reported, the changes in the optic disk have receded slowly and there remains a considerable amount of blurring of the margins, although no atrophy has occurred and the patient has no subjective eye symptoms. Were the changes due to intracranial pressure, the choked disk would have disappeared by this time, and it is the opinion of the men who have seen the case that it is a true optic neuritis.

March 2, 1923, 50 c.c. of the patient's blood was sent to Dr. Simon Flexner of the Rockefeller Institute, who performed a neutralization test. The reaction was reported as "inconclusive; that is, not speaking either for or against the case being one of infantile paralysis." From the physical examination, the history, and the distribution of the paralysis without sensory changes, one cannot make any other diagnosis. The history of slight visual disturbance at the time of febrile attack, together

2. Tedeschi, E.: Paralisi spinale infantile acuta con emiatrofia facciale ed atrofia del nervo ottico, Atti dell' Accademia di Scienze mediche e naturali in Ferrara, 1904.
3. Wickman, I.: Beiträge zur Kenntnis der Heine-Medinschen Krankheit, Berlin, 1907, p. 57.
4. Wickman, I.: Studien über Poliomyelitis acuta, Arb. a. d. Path. Inst. d. Univ. Helsingfors 1: 1905.
5. Müller, K.: Ueber die Frühstadien der spinalen Kinderlähmung, München. med. Wchnschr., 1909.
6. Peabody, F. W.; Draper, G., and Dochez, A. R.: A Clinical Study of Acute Poliomyelitis, Monograph 4, June 24, 1912.

with the findings in the eye grounds without any other causative factor, have led me to the conclusion that the case is one of definite optic neuritis as a complication of infantile paralysis.

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SOME SURGICAL ASPECTS OF DIABETES

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The commonest complication in diabetes is infection in various forms. Some of these infections belong in the realm of surgery, and require operations. The mortality in these cases has been very high until recent years. A number of years ago I looked up the statistics in several hospitals and averaged them, and the mortality in diabetic cases with surgical infections was about 45 per cent. The mortality here (in New York Hospital) was found by Weeden,[1] for the decade preceding the use of insulin, to be roughly 40 per cent. With the advent of insulin, and in spite of the fact that we had some of the most hazardous surgical diabetic cases we had ever had, the mortality in the first year dropped to 12 per cent. This fact tells better than anything else the changed conditions in which we now work.

In the individual who has not only diabetes, but also some serious infection requiring surgical intervention, we have to consider the influence which diabetes has on the general constitution. In brief, poor resistance is manifested by the fact that the patient developed the infection, and then, too, the low recuperative powers of these patients and the sluggish tissue repair are well known. These are the basic factors which contribute to the very high mortality which has been every surgeon's experience with diabetic patients.

It is worth while to consider the patient with the surgical infection in order to visualize some of the factors in the disease and the problem with which one has to deal in each individual. Having visualized the problem, we are better able to anticipate and to meet various exigencies before an emergency arises, or to combat it promptly when the emergency does arise.

It is a striking fact that the diabetes in these patients who contract surgical infections is usually of a mild type. More than half the diabetic patients who enter this hospital in the surgical service do not know that they have diabetes. In other words, the diabetes is so mild that they have never had to consult a physician for symptoms arising from it, and until an infection develops or some complication of the diabetes arises, which necessitates entrance to a hospital, they are ignorant of their disorder. As a result of the infection, the diabetes may for a period be of the severest variety, may in fact precipitate coma; but when the infection has subsided these patients usually have a high tolerance, and it has often happened that patients requiring insulin in enormous doses, from 200 to 300 units daily, during a febrile period, have later been able to take a liberal diet and have left the hospital no longer requiring insulin. For this reason, this type of case has always excited my special interest; there is a peculiar satisfaction in restoring a patient to life with only a minimum of handicap, and the fight to do this, while it lasts, may be pleasingly strenuous. The surgical diabetic patient is usually fat, which is another expression of the mildness of his diabetes.

When a fat diabetic patient develops an infection associated with fever, there are certain changes in metabolism which result. These changes to a certain extent are notable in any case of fever, when the intoxication is of sufficient severity to impair appetite and considerably decrease the amount of food consumed. Acetone and diacetic acid appear in the urine of these patients; there may be even some shift in the available alkali of the blood plasma, indicating a tendency toward acidosis. Under exceptional conditions, as in children and occasionally in adults, a clinical acidosis may develop. But the so-called acidosis of fever, the acidosis accompanying obstinate vomiting and following severe operations, is usually induced by exhaustion of the carbohydrate reserves of the body (glycogen). This nondiabetic acidosis is amenable to glucose therapy. If one feeds on his own tissues, he is likely to have a badly balanced ration.

Now in the diabetic patient, of the changes in metabolism initiated by infection, the first and possibly the most significant is a rapid diminution in ability to utilize carbohydrate. The mild case of diabetes becomes at once severe. Tolerance falls in all. And with severe infections, it falls to a ratio indicative of the state of complete diabetes. On account of the rise in temperature, there is an increased metabolism. This occurs in all cases of fever and is not peculiar to the patient with diabetes. Because of the toxemia of the infection, the patient loses his appetite and does not take adequate amounts of food. He may develop nausea and vomiting and be unable to take a sufficient amount of liquids.

What are the results of these several factors: surplus of body fat, increased metabolism due to fever, deprivation of food and liquid? Since inadequate food is taken, the body tissues are drawn on as a source for the increased demands for energy. There is increased protein catabolism, as shown by the elevated urinary nitrogen, but more especially there is increased fat catabolism. The body has ample fat reserves, and to a degree protein is protected. Of glycogen there is, even in health, too little to count for much in several days of fever. The net result of this state of affairs is that the metabolism becomes one chiefly of fat with some protein. That the fatty acid molecule may be completely oxidized to carbon dioxid and water, it is necessary that a definite amount of glucose be oxidized with it; otherwise fatty acid is broken down only to the ketone acids. But the only carbohydrate that is available in the tissues is the small amount coming from the protein. This amount of carbohydrate is wholly inadequate to aid in the combustion of the large amount of fat that is burned for energy in fever states, and in the diabetic patient even this glucose is partly lost. Under these conditions an increased formation of ketone bodies is inevitable, and the development of a clinical acidosis is only a matter of the severity of the infection and of time. Thus considered, one may say that every diabetic patient who contracts infection has entered the road to coma. If the various factors that contribute to the clinical picture of acidosis in diabetes are thus visualized, it then becomes obvious that it is necessary to make adjustments that will tend to prevent acidosis before clinical signs of this condition are apparent.

1. Weeden, W. M.: The Mortality or Surgical Complications in Diabetes, J. A. M. A. 82:1165 (April 12) 1924.

Then, too, there is another important consideration to have in mind; namely, the effect of an anesthetic on the metabolism. This effect in the diabetic patient is not peculiar; or, rather, it is only an exaggeration of the disorders that occur in normal persons. During ether narcosis there is always a rise in the blood sugar. That fact was demonstrated in this clinic years ago, and every surgeon has noted that the postoperative specimen of urine may occasionally contain sugar, indicating that the blood sugar has risen above the renal threshold level. Whether this fact is to be interpreted as an increased mobilization of glucose from the tissues or decreased utilization is not clear, but I am inclined to think that defective utilization is more probable. In diabetes the defect is already present, and the effect of an anesthetic, especially ether, is more pronounced that in normal persons. There is another effect of anesthesia which is important in its relation to the diabetic patient, possibly more important, and that is the reduction of the alkali reserve of the blood plasma, or, more loosely stated, the acidosis of anesthesia. In patients that are not diabetic, this state is but seldom manifested by signs of acidosis; though in the last few years, since surgeons began to consider the metabolic perversions detectable by examination of urine and blood, there has been the habit to regard a slightly lowered carbon dioxid combining power of the plasma or ketones in the urine as sufficient evidence of clinical acidosis. In persons whose metabolism is normal, these evidences of a trend toward acidosis usually follow ether anesthesia. And in the diabetic patient there may be only a slight exaggeration of the tendency; but it is not uncommon for signs of alarming acidosis to follow anesthesia. On this account it is better, when possible to do so, to use nitrous oxid or ethylene rather than ether, and in any case to use as little anesthetic as possible. When feasible, local anesthesia is the best, especially the method of blocking.

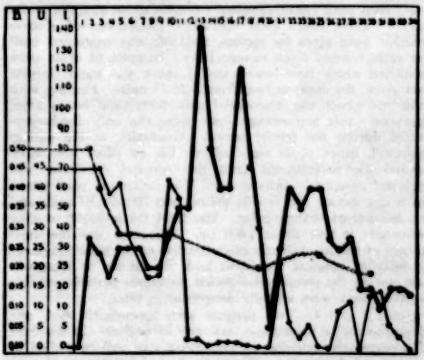
It is embarrassing to call attention to a neglect in treatment when the indications for it are obvious, but it is a fact that dehydration seems not to be reckoned among seriously abnormal conditions. Dehydration alone induces fever, and this one consideration merits attention. In the diabetic patient it is especially easy for the tissues to become dehydrated if for any reason the ingestion of water is reduced. If the patient is vomiting, or somnolent from fever and infection, it is inevitable that the liquid consumption will decrease; but during the same period, possibly, the glycosuria and the polyuria have not abated and may even increase. The result is not infrequently a desiccation of the tissues approached in degree only in cases of intestinal infections in children. The parched tongue and pharynx are visible signs, and we have found that the elevated specific gravity of the blood and decreased water content cannot be explained by an increase of blood sugar alone. There is actual anhydremia. In diabetic coma the decreased intra-ocular tension, which is, I think, the one pathognomonic sign, is probably produced by dehydration.

A clearer understanding of some of these contributing factors to the high mortality of surgical complications in diabetes made it possible, even before insulin, to regard surgical intervention as not entirely hopeless. And now that one may anticipate the development of some of these disorders, and even prevent their menace, the prognosis in these cases has been entirely changed. In the future the result to be expected will depend almost entirely on the nature of the surgical complication, since acidosis and the diabetic state on which it depends can be controlled.

TREATMENT

For the consideration of modes of treatment, the cases fall easily into two groups. The first group includes cases requiring immediate operative procedures; with these, time cannot be permitted for any preparation, and whatever measures are taken to prevent anticipated metabolic disorders must be carried on without interrupting surgical treatment. The second larger class includes the cases which require an operation but in which there is no emergency, and a day or more is permitted to prepare the patient. The best example in the emergency group was a case of strangulated umbilical hernia (Case 1) in the service of Dr. Gibson.

CASE 1.—An obese Italian woman, who was brought to the hospital in the night, gave no history of diabetes, though the urine contained much glucose. The condition of the patient was not encouraging, and, with the complicating diabetes,



Case 1 during critical period: heavy solid line, insulin in each twenty-four hours; light black line, urine sugar, in grams for each twenty-four hours; cross hatched line, blood sugar in grams for each hundred cubic centimeters.

it appeared absolutely hopeless. Operative procedures were restricted to the absolutely essential, and were hurriedly done. There was no preoperative treatment. Following operation, insulin was given in 10 unit doses every four hours, and water and glucose were given by rectum. The dose of insulin throughout was controlled by examination of the urine every four to six hours. The wound indicated no healthy reaction and after a few days developed an infection with *Streptococcus hemolyticus*, which led to extensive sloughing and fat necrosis. At its worst, about the tenth day, there was a huge, open wound, involving an area a foot square, sloughing, necrotic and fetid. The surgical treatment was by the Dakin method. Owing to the constitutional reaction from the infection, the patient took no food and little liquid, only small amounts of orange juice, and lemonade sweetened with glycerin. The glycosuria was not high, but there was every evidence of severe acidosis. As much water and 5 per cent. glucose solution as possible were given by rectum, and the insulin dose was increased. On the thirteenth day 140 units was used, which reduced the glucose in the urine to traces. During this critical period, the chief menace appeared to be acidosis. Had it been possible to introduce more sugar into the blood stream, larger amounts of insulin could have been used; but the total sugar that may be given intravenously is relatively small in a long drawn out struggle of this sort, and one is forced to depend largely on absorption from the bowel. Four ounces of glucose solution was given by rectum

every four hours, day and night. The dose of insulin varied from 10 to 30 units every four hours, day and night, depending on whether much or little sugar was found in each urine sample. Gradually the infection abated, and the wound became healthy, and with this improvement the acidosis subsided also. After the wound healed it was possible to discontinue insulin, and this patient left the hospital able to take a liberal diabetic diet without glycosuria. She was alive and well a year later.

Case 2.—One case of acute appendicitis belongs in the emergency class. Operation had been deferred on account of the risk in a diabetic subject, and the patient had been treated by ice compresses. Food and liquid had been withheld for nearly twenty-four hours. When first seen, there were manifest signs of severe acidosis as well as of appendicitis. The patient was much dehydrated through water deprivation, and seemed in no condition for any operation. The temperature was 102 F.; the urine contained sugar and gave a strong reaction with ferric chlorid. While arrangements were being made for transfer to a hospital, 50 units of insulin was given intravenously in 100 c.c. of saline solution. During the operation, more saline solution was given by hypodermoclysis. After the operation, at which a gangrenous but unruptured appendix was removed, 10 units of insulin was given every hour until sugar vanished from the urine nineteen hours later. Twelve hours after operation, instillations of glucose solution were given by rectum, and this was continued until the patient could drink orange juice. Samples of urine were examined every four hours, and if there was sugar, insulin was given, the dose varying from 5 to 15 units. Feeding with milk and gruel was considered safe forty-eight hours after operation; this and orange juice were the only foods permitted during the febrile period. Gradually, as the patient improved, other foods were added; but no effort was made toward diet adjustment until the surgical condition was regarded as entirely satisfactory. The maximum food intake for a day during the febrile period was 700 c.c. of milk and the 300 c.c. of orange juice. The fluid taken could only be estimated; it was about 1,800 c.c. This case was the most stormy of the appendicitis cases because of the poor judgment in delaying surgical treatment and the failure to recognize that, during the preoperative period, measures possibly suitable to other cases were actually dangerous in this.

Cases 3 and 4.—Two patients with appendicitis died, one of postoperative pneumonia, and one of neglect. In the case of postoperative pneumonia, glycosuria was well controlled to the end and there was neither clinical nor laboratory evidences of severe acidosis. The other patient was first seen two days after operation. No attempt had been made to supplement the scanty amounts of fluid which the patient had been permitted to take by mouth, mostly ice, in spite of the fact that a high glucose content of the urine must have been accompanied by polyuria. The patient was dehydrated, and there were signs of severe acidosis. The blood sugar was 0.720 per cent. The attending physician advised that the measures recommended were radical and dangerous, and he was probably correct in his opinion that they would be of no avail. The patient died in coma.

Of the varied details of treatment that must be held in mind in these desperate cases, experience has impressed me that no consideration is more important than the prevention of abnormal loss of water from the tissues. Before the advent of insulin, when it was possible to carry this idea into effect, the result was often satisfactory. The failures were usually in cases of protracted infection, and the fluid intake could not be kept up to the excretion. It is especially necessary to be mindful of the danger of dehydration when the character of the operation requires limitation of the liquid drunk for a period after operation. It has seemed to me that the idea might be useful in general; it is certainly crucial in severe diabetes. When adequate doses of insulin are given, the glycosuria rapidly abates and with it the polyuria; but there is an interval before this degree of control is effected during which abnormal loss of water in the urine persists. When the need of surgical intervention suddenly arises, then the demands to be met are the control of glycosuria and the prevention of dehydration.

In some instances, diseases not usually classed as requiring emergency treatment may need immediate attention because of the complicating diabetes. Infections needing operation to secure drainage belong in general to this class. The acidosis of coma is often induced by infections, and in some of our cases of coma it is believed that this degree of intoxication might have been prevented by prompt surgical treatment. Cellulitis and some carbuncles demand free incision for drainage, and since the operation is in itself simple and may be done with little or no anesthetic there is no good reason for delay. The reason for postponement of an operation is often a fear of the diabetic state, and this in turn seems partly due to an imperfect idea of the metabolism in diabetes and the effect which infection has on it. In essential effect, the infection that induces a constitutional reaction augments the severity of the diabetes; as the diabetes grows worse, tissue resistance decreases and the infection progresses—a vicious circle. This is well illustrated in some cases of carbuncle. The diabetic element in early cases of carbuncle is easily controlled by diet regulation alone, without insulin, and the carbuncle may be incised or excised, as seems best. Neglected, the infection spreads, and the diabetes grows more and more difficult to control.

Case 5.—One patient was admitted to the surgical wards with a sloughing ulcer extending from the scapula to the sacrum. There was a critical acidosis, and the patient was utterly exhausted. Although it was possible to control the acidosis and the glycosuria, the patient died from the infection and inanition.

Case 6.—Mr. H. had two enormous carbuncles, each about 6 inches in diameter, one on the back of the neck extending to the ears and another in the lower intrascapular region. His physician was unable to prevail on the patient to follow advice until he was too weak to resist. There was a high hyperglycemia and severe acidosis. The carbon dioxid combining power of the blood fell to 16 per cent. by volume. Allen saw this patient in consultation with me and believed the outlook hopeless. The carbuncles were incised by Farr to secure drainage and relieve tension. At the first operation, only the absolutely essential was done; later, when the patient's condition was better, it was necessary to open pockets on several occasions. In the beginning, the patient was allowed only milk as food, 1 liter daily, and was required to drink as much water and glycerin lemonade as he could.[2] Since he was obese, the idea was to supply chiefly carbohydrate and permit the metabolism of the body fat. No insulin was used. After several trying days, the acidosis abated and the glycosuria ceased. Healing was slow and tedious. Direct sunlight on the wounds seemed to us to promote granulation. This patient recovered and resumed his customary pursuits for nearly two years. He died suddenly, last year, of some sort of cardiac failure.

The same general principles governed the treatment of cellulitis following infected wounds: prompt surgical intervention and diligent attention to the danger of acidosis. Cellulitis of the foot and leg is a common result of slight abrasions and of malum perforans. Joslin has given splendid advice about the preventive treatment of these conditions to which the diabetic patient seems peculiarly susceptible. It is important that he wear well fitting foot gear; blisters and cal-

2. The importance of glycerin as an antiketogenic is stressed by Thomas, H. M., Jr., Bull. Johns Hopkins Hosp. 35:1: 201 (July) 1924.

luses are dangerous. Soft, thick wool stockings are advisable. The feet should be bathed, dried, and massaged with hydrous wool fat, in order to keep the skin soft and healthy.

Ulcers of the feet seem to develop in several ways; there may be first a crack in the skin or an abrasion which becomes infected, or the first sign may be either a blister or a dry, black eschar. The blisters are usually less than an inch in diameter, vary from pink to purple, and are surrounded by a hyperemic zone. The contents may be at first only slightly blood tinged or quite bloody. There may be complete healing promptly, as with a bruise in a healthy person, or there may be necrosis, sloughing and ulcer formation. The black eschars appear sometimes quite suddenly. In one case I saw the complete cycle; the first day there was an area the size of a dime, which was slightly pink, and located an inch below the external malleolus. It would not have been noted if there had not been an ulcer on the other foot. In a day this had increased very slightly in size, and the color had become purple. There was no bleb formation; rather, the skin seemed a little drier. Two days later the area was black, dry and slightly depressed.

These areas of circumscribed gangrene may occur anywhere on the foot, but seem more prone to develop below the malleoli, or on the outer surface of the foot back of the small toes, or to involve a toe. Their appearance and course suggest that they are due to closure of an arteriole supplying the involved area, either by a thrombus or by spasm, as in Raynaud's disease. When the dry crust is torn away the tissue beneath does not bleed normally, and there is no increase in the sensitiveness of the part unless there is secondary infection. The eschar may remain in place unbroken for weeks. Often infection occurs and leads to deep, crater-like ulcers covered with necrotic slough and pus. In healing, which is protracted, there is little granulation. The epithelium growing down leaves a depression.

When these conditions are seen early before infection occurs, they may be treated with warm foot baths of hypertonic salt solution, or the area may be curetted or excised. Curetting is often necessary to stimulate granulation. While healing is often secured, there is always the probability that later there will be other new areas, which possibly speaks for arterial origin. One patient spent three months in the hospital on two occasions, and a year later had to submit to amputation of the foot for dry gangrene. On this account it is desirable to study the arteries of the foot and leg by means of roentgenograms. When the sclerosis of the vessels has reached a degree so that it is visible in roentgen-ray plates, amputation may be the most conservative measure. Amputation is sometimes required, too, for the relief of pain, which is very common in these cases.

The general condition of the patient and the impaired blood flow locally probably explain the frequency of infection. At first there may be a small ulcer, which the patient very often cares for himself; but he may present himself later with a cellulitis extending well up the leg, fever, and a serious aggravation of the diabetic state. Prompt amputation may be required to save life. One patient suffered the amputation of one leg and a year later of the other and is now enjoying a life free of pain. The infection follows tendon sheaths and fascia planes; and may involve the bones. In these cases, adequate drainage is of first importance; then, if the blood sugar is reduced to normal, the result in many cases is surprisingly good. When the infection has not extended up the leg, and when there is no severe systemic reaction or advanced arterial disease, amputation may be avoided. Cases of gangrene of an extremity resulting from thrombosis of a main artery always require amputation. It is true, however, that in one or two instances the distal phalanx of one of the small toes became gangrenous and sloughed off, and the stump healed without any medical treatment. The question in these cases, however, is usually where to amputate and when. In order to have a good blood supply in the stump for healthy healing, it is necessary to amputate higher than general appearances seem to indicate. Unless there are other factors than the diabetic state to be reckoned with (such as cardiac disease, advanced nephritis or senility), the time of operation may be decided purely from surgical considerations, because it is almost always possible to control the diabetes effectually in a day or two at most. These cases come in the group for which time is available for perfect preoperative preparation.

Results in Diseases Complicated by Diabetes

Surgical Disease	Number of Cases	Result
Appendicitis, acute	6	2 deaths, one of pneumonia
Carbuncle	16	No deaths
Cellulitis, hand	6	One death
Cellulitis, foot	11	Two deaths, 5 amputations
Cellulitis, scalp	1	Recovered
Carcinoma, breast	1	Recovered
Carcinoma, prostate	1	Died in coma
Cataract	4	No deaths
Cholecystitis	3	No deaths
Exophthalmic goiter	3	No deaths
Gangrene of foot, arterial	16	14 amputations, 4 deaths
Gangrene of foot, infected	27	17 amputations, 2 deaths
Hernia, strangulated umbilical	1	Recovered
Mastoiditis	2	Recovered
Mediastinal abscess	1	Recovered
Otitis media with acute suppuration	4	No deaths; 2 patients were in coma when first seen
Total	103	cases; 12 deaths.

In order to reduce the risk of operation for the diabetic patient as nearly as possible to the level of the surgical disease for which operation is done, three conditions must be effected: constant freedom from glucose in the urine; a maximal diurnal blood sugar of less than 200 mg. per cent., and absence of acidosis. These conditions may be attained by diet adjustment alone; the use of insulin insures success and shortens the time period required. When the nature of the operation is such that the patient's diet must be limited or restricted to liquids after operation, it is better to use milk for the preliminary period; then no new adjustment is needed directly after operation. Besides, milk has definite advantages in itself: it is a balanced food in respect to fatty acid and glucose ratios, and, in contrast to the usual diabetic diet, it is an alkaline diet. There is no other food so easily measured and whose composition in carbohydrate, protein and fat may be so accurately estimated. And for the expeditious adjustment of diet, accuracy is the master key. The amount of milk in the diet naturally depends on the caloric needs of each patient.

By using insulin along with a diet of known composition, it is usually possible, if one will take the trouble, to attain normal blood sugar and sugar-free urine in twelve hours. Ketonuria may persist for a day unless considerable glucose is given with calculated doses of insulin to metabolize it. When it is desired to reduce the blood sugar as rapidly as possible, it is necessary to examine the urine for sugar at two hour

intervals and to estimate the required dose of insulin from this amount of sugar in the urine. In this rapid method there is always the possibility of producing hypoglycemia ("insulin shock"), but this is easily checked by injecting a small amount of glucose intravenously.[3] The whole procedure should be carried out with the accuracy and care given to a surgical operation. Diabetes is one disease that may be handled with almost mathematical precision.

121 East Sixty-Second Street.

FIVE SUCCESSIVE GENERATIONS OF WEBBED-FINGER DEFORMITY

STUDY OF A FAMILY

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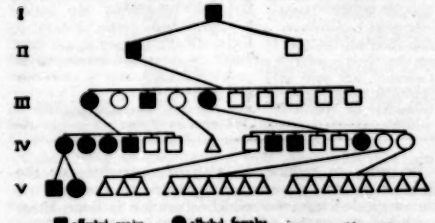
Syndactylism, or webbing of the digits, is a deformity seldom encountered in medical practice. The cases reported here may throw some light on the hereditary aspect of the condition. In the past, other families have been described, in many of which the component groups have been very small. This has detracted from their value to students of the hereditary aspect. In the family presented here, the groups within the whole have been large, and the deformity has occurred with considerable frequency.



Occurrence of syndactylism in five generations.

The cause of the deformity is not known. Osler thought that it occurred more frequently in children of syphilitic parentage. Edwards [1] states that it is a stigma of degeneration occurring in persons of weakened intellect. He does not attempt to explain the cause of the weakened intellect. A decidedly low mentality accompanied the defect as it is presented in the family described here. What part alcohol, infection and inbreeding play in the production of this deformity is not known. In the present family, each or all may have played a part in the propagation if not in the origin of the defect.

The family in question lived a very primitive existence in an isolated mountain community. They were visited in their home, and four of the members exhibiting the defect were examined. Three of these four were members of three successive generations. Examinations of additional members and roentgen-ray studies were precluded by geographic and other difficulties. Information concerning the frequency and extent of the deformity was secured from the oldest of the four members examined, a woman who was personally acquainted with all the defective members.

The family as a whole had had practically no education. Most of the members could neither read nor write, but could have learned had they had the opportunity and desire. Their faces did not indicate a mental development of the average level of intelligence. Family morals were none too good. The first member on the family tree is said to have threatened to disown his wife's first child should it not present his defect, which consisted of webbing of two toes. His wife was a first cousin, the only case of such close inbreeding known in the family. The last child in the family tree, a boy, was illegitimate.

The members of the family examined were subnormal physically. The eldest member was a poor physical type. Her daughter presented a large cystic goiter, and a son had a very decided defect of speech.

The neighbors were little, if any, better. A woman neighbor with extreme clubbing of the feet married into the family, as well as a man who had only four fingers on one hand. There was an idiotic epileptic child in the nearest family. A girl in another family was a deaf-mute. It was of interest to learn that one of the girls with complete webbing of the outer four fingers was able to carry on conversation in the sign language with the deaf-mute. However, she was unable to communicate with another deaf-mute who had been trained in the standard method.

It is apparent that there has been little opportunity for this family to cross blood with better stock. The cause of the condition has not been determined; but, no doubt, it has not been much improved by the new blood it has received.

INDIVIDUAL DEFORMITIES

The generation is indicated by a roman numeral; the individual member, by an arabic numeral.

I, 1.—The earliest known member of the family had clear hands. The only deformity was webbing of the index and middle toes on the right foot.

II, 2.—All fingers and all toes were webbed.

III, 1.—All fingers were grown together except the right little finger.

III, 3.—All fingers and all toes were webbed; the boy died while an infant.

III, 5.—The middle and ring finger on each hand were webbed. All toes were webbed on both feet.

IV, 1.—The toes were all webbed. The hands were clear.

IV, 2.—All the fingers were webbed. All the toes were webbed.

IV, 3.—The fingers and toes were all webbed.

IV, 4.—The middle and ring fingers on the hands were webbed; all the toes were webbed.

IV, 9.—All the fingers and toes were webbed.

IV, 10.—The middle and ring fingers on the hands were webbed. The condition of the toes is not known.

IV, 13.—The middle and ring fingers on the hands were webbed.

V, 1.—All the fingers and toes were webbed.

V, 2.—The toes were all webbed. The right hand was free, but the fingers on the left hand were webbed to the second joint.

COMMENT

There is no knowledge concerning any of the relatives of Patient I, 1. This being true, the defect may have existed for many generations. However, since the defect is the least marked in the first known member, it is possible to assume that the defect did not originate many generations before him.

3. This is the proper method to employ in diabetic coma. It should then be supplemented by attention to dehydration.

1. Edwards, J. G.: Syndactylism, M. J. Australia 2:319 (Oct. 14) 1916.

A glance at the family tree brings out several interesting facts. The defect makes its appearance in either sex, and, perhaps by accident only, as often in the males as in the females. It is transmitted equally by either sex. When a parent in the defective family is clear, all the family are clear. Additional weight is given to this observation by the large size of the families recorded. The defect appears to be on the increase in each succeeding generation, and would have been greater, no doubt, if a number of the defective marriages had not been sterile. The defect has presented itself in about 30 per cent. of the family. It began with a fusion of only two toes on one foot, but rapidly in the progeny affected all the digits on both extremities. Webbing of the hands occurred with the same frequency as webbing of the feet. The thumb was always free, while the large toe was usually webbed. The most frequent combination was webbing of all toes and all fingers except the thumb. Complete foot webbing was more frequent (91 per cent.) than webbing of the hands (58 per cent.). Webbing of the middle and ring fingers on each hand was extremely frequent. This cannot be explained.

CONCLUSION

The chief point of interest in the study of this family is the fact that the deformity is apparently never transmitted to any of the grandchildren when the parent is clear. This is true even though several preceding generations have been affected. This might possibly lend weight to the arguments against syphilitic infection as being a factor in causation.

A CLINICAL AND EXPERIMENTAL INVESTIGATION OF ARSPHENAMIN POISONING*

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The frequency, the etiology, and the pathologic significance of fatal and nonfatal accidents following the administration of arsphenamin are still to a great extent obscure. It is of practical interest, therefore, to publish an analysis of accidents due to arsphenamin and to present the record of an attempt to approach one phase of the clinical problem with the help of animal experiments.

The surviving patients under consideration were admitted to Bellevue Hospital during the last ten years, and reports of fatalities were taken from the records of the chief medical examiner of New York City.

The pathologic examinations of the bodies of patients following fatal accidents with arsphenamin, in which there was no clinical or anatomic picture of acute yellow atrophy of the liver, revealed findings that explained why arsphenamin caused death, as I shall show presently. In fatal cases of acute yellow atrophy, on the other hand, no predisposing factor was revealed at necropsy. Animal experiments were performed for the purpose of throwing light on this phase of the problem. The older literature was reviewed by Wechselmann,[1] and I will refer to the literature of recent years only.

* From the Department of Pathology of Bellevue Hospital.
* Read before the New York Pathological Society, March 13, 1924.

1. Wechselmann: Ueber die Pathogenese der Salvarsantodesfälle, Berlin and Vienna, 1913.

A priori, one would suspect, as Kutschera[2] suggests, that arsphenamin may produce certain injury in the liver or other organs in man, and that recovery from these tissue damages may occur rapidly in the great majority of cases. If, however, any condition is present in the body that prevents recovery from, or increases the injury produced by, arsphenamin, acute yellow atrophy may occur.

Kolmer and Lucke[3] are the only investigators who have studied the histologic changes in rabbits and rats, following the intravenous administration of arsphenamin. When a series of from five to eighteen doses of 0.01 gm. of arsphenamin per kilogram of body weight was injected into each of six rats and six rabbits, small focal necroses were found in the liver on microscopic examination, but the lesions were inconspicuous and varied according to the number of doses injected and according to individual susceptibility.

EXPERIMENTS WITH ARSPHENAMIN

The purpose of this study was to ascertain whether arsphenamin in massive therapeutic doses produces changes comparable to those of acute yellow atrophy of the liver in man and, if such changes are not produced, whether any predisposing condition could be induced experimentally which, together with arsphenamin, produces acute yellow atrophy of the liver in animals. Cats were used in these experiments.

Since the acid solution of arsphenamin is more toxic, so far as the fatal dose is concerned, the neutralized solution was used for injections according to the technic of the Hygienic Laboratory. Nine cubic centimeters of a normal solution of sodium hydroxid was added to 1 gm. of arsphenamin and this was so diluted that the concentration was 1:75. Doses of 0.015 gm. of arsphenamin per kilogram, corresponding to 0.9 gm. for a man of 60 kilograms, were administered. Although this dose is larger than any employed in therapeutics at the present time, it is suitable for experimental purposes in which it is desirable to obtain an exaggerated picture of the therapeutic effects produced in man.

Eighteen animals received injections of arsphenamin. It was planned to give six doses at intervals of a week in one series, and six doses in three weeks in another series. Four animals were used as controls to study the normal structures of the organs. Some of the animals developed infection before the series could be finished, and they were killed as soon as the infection was discovered. The rest of the animals were killed between one and seven days after the last injection. Hematoxylin and eosin were used as stains.

The microscopic changes found were not always proportional to the number and frequency of injections. Usually, the liver was slightly diminished in size; the surface was covered with diffusely scattered, small, dark hemorrhagic spots, but the gross appearance of the liver in several animals was normal. There was slight necrosis at the periphery of the lobules, with moderate fatty infiltration; there was also round cell infiltration, with numerous erythrocytes around the lobules. The biliary ducts were normal, and there was no increase in the amount of connective tissue. In some cases, the cells showed cloudy swelling; in others, there was a wide, free interspace between the epithelial

2. Kutschera, H.: Ueber die Beziehungen von subacuter gelber Leberatrophie zur granuler Zirrhose, Wien. klin. Wchnschr. 36:737 (Oct. 11) 1923.

3. Kolmer, J. A., and Lucke, Baldwin: A Study of the Histologic Changes Produced Experimentally in Rabbits by Arsphenamin, Arch. Dermat. & Syph. 3:483 (April) 1921.

columns. The kidneys appeared normal on macroscopic examination, and no histologic changes, except slight congestion and slight fatty degeneration of the tubules, were noted. The spleen was normal.

The histologic changes found in these animals did not resemble those found in cases of acute yellow atrophy of the liver in man.

Effect of Arsphenamin Combined with Mercuric Salicylate.—Each of three cats received six doses of 0.015 gm. of neutralized arsphenamin per kilogram intravenously at intervals of a week, and, during the same period, five doses of 1 mg. of mercuric salicylate per kilogram, corresponding to 60 mg. in a man of 60 kg. Each animal received, therefore, one dose of arsphenamin and one dose of mercuric salicylate within the same week for five weeks. They were killed about one week after the last dose. The pathologic findings were practically identical with those observed in the animals that received arsphenamin alone.

The Effect of Arsphenamin Combined with Chloroform.—It is well known that the administration of chloroform produces extensive necrosis in the liver of various animals, and, as the experiments described above did not produce changes comparable to those of acute yellow atrophy of the liver in man, an attempt was made to study the effects of arsphenamin on the viscera of the cat, after chloroform had produced injury in the liver.

Chloroform anesthesia was induced for periods of one and a half hours in four cats. The animals were fed with milk during two or three days, and were then killed. In every case, the liver was small, the surfaces fairly mottled; there was extensive necrosis of the central portion of the liver lobules; the peripheral zone of the lobules showed outlines of normal cells only; there was marked fatty degeneration of the tubules of the kidneys; the spleen was normal.

Three cats were anesthetized with chloroform for one and a half hours. They were fed with milk for twelve days and then killed. The liver was found to be yellow, and there was no mottling of the surface. Histologic examination showed marked diffuse fatty degeneration, but there was no evidence of necrosis. A surprising degree of regeneration had occurred in the liver within a period of twelve days. There was slight fatty degeneration of the kidneys; the spleen was normal.

It is interesting to observe that marked fatty infiltration, congestion, and small areas of necrosis also were found in the livers of four cats that had been anesthetized with chloroform for periods varying from fifteen to forty-five minutes.

Seven animals were anesthetized for one and one-half hours with chloroform. During the following two to three weeks, from four to six doses, respectively, of 0.015 gm. of arsphenamin per kilogram of body weight were injected intravenously, after which the animals were killed. The microscopic examination of the liver showed diffuse fatty infiltration in all cases. The livers in three of these animals showed very small areas of necrosis. The livers of those animals which received arsphenamin after treatment with chloroform recovered from the injury at practically the same rate and to the same extent as those of animals which were treated with chloroform alone. Arsphenamin, under the experimental conditions described, failed to produce acute yellow atrophy of the liver, comparable to that in man, even when the liver had been injured by chloroform.

TOXIC EFFECT OF ARSPHENAMIN IN MAN

Analysis of the effects of a drug on the diseased human body is difficult. The many variables often make it impossible to distinguish the effects due to drugs from spontaneous changes. Judgment is especially difficult when the effects of the drugs are delayed; in the following discussion, therefore, I have omitted several cases in which the evidence did not enable one to distinguish the toxic effects of arsphenamin from the symptoms of disease.

Toxic Nonfatal Accidents Following the Administration of Arsphenamin.—During the last ten years, thirty-four patients who were suffering from more or less severe, mostly acute, toxic effects of arsphenamin were admitted to Bellevue Hospital. Sixteen suffered from the well known systemic reaction—manifested by chills, fever, malaise, nausea and vomiting—immediately after the administration, and some of them also showed some of the following symptoms: Jaundice was the signal sign in ten cases; edema was the prominent sign in four; four showed dermatitis exfoliativa. One patient developed jaundice after the systemic reaction following injection of the drug, and, in another, edema developed with the onset of jaundice. Three of the four having edema also showed dermatitis exfoliativa. The occurrence of such a high percentage with diverse symptoms shows that the group classification is not a rigid one.

All the ten patients with jaundice had more than one injection, and the majority had from five to ten, before the onset of this symptom. The onset of toxic signs, beginning with chills, fever, nausea, vomiting and diarrhea, was rather sudden in four cases, and more gradual in six. These toxic signs disappeared within one or two days. The jaundice disappeared within a few days in some cases and persisted two or three months in others. It varied from a slight discoloration of the sclera to a deep yellow of the entire skin. Some of the patients in this group had a more or less severe reaction following each injection; others developed jaundice after the first systemic reaction.

One patient in this group, a woman, aged 27, showed several interesting features. After each injection of arsphenamin, marked swelling of the ankles, feet, hands and face developed. Edema persisted for two or three days. The excretion of urea was normal; the urine contained a slight trace of albumin. The Wassermann test was + + +. While in the hospital, after recovering from the symptoms, 0.3 gm. of neo-arsphenamin was given intravenously. She developed slight jaundice, itching of the skin, nausea, malaise and swelling of the face within twenty-four hours. Three patients with edema and dermatitis exfoliativa showed eosinophil counts of 27, 35 and 47 per cent., respectively. The swelling of the face was intense in one case, and the patient could not open the eyes for several days.

Fatal Accidents Without Jaundice.—Twenty-one fatal accidents occurring during the last six years, in which the relationship between the injection of arsphenamin and death is definite, are recorded in the office of the chief medical examiner of New York City. In four of these cases, no necropsy was performed; in two of these four, the dominant clinical signs were edema and dermatitis exfoliativa. These two cases are worth mentioning because of the rare occurrence of this type of fatality.

One of the patients developed severe chills following the intravenous injection of 0.75 gm. of arsphenamin. Ten days later, rather severe desquamative dermatitis involving the

entire surface of the body appeared. The urea of the blood rose from 14 to 62 mg. per hundred cubic centimeters. The patient died about forty days after the appearance of the dermatitis.

Another patient, a woman, aged 54, had several injections without ill effects, but after the last injection, she developed dermatitis with swelling of the eyelids, and died suddenly several days after the injection. In seventeen cases, the pathologic examinaton did not reveal specific injury due to arsphenamin. The age of the patients varied between 6 and 54 years. No relation could be found between the amount of arsphenamin injected and death. Fatal accidents occurred from doses as small as 0.2 gm., though several patients received repeated doses of arsphenamin at the same clinic with the same technic without ill effects.

The onset of toxic symptoms occurred usually at once, or a few minutes after the injection. The patient became pale or cyanotic, with a sense of oppression over the chest, and pain over the precordial area. Occasionally, acute pain was felt in the mouth; convulsions or marked disturbance of respiration then followed. Some patients passed into coma; others were fully conscious to the end. Death occurred as early as two minutes after injection in one case, and after a few hours in others.

Necropsy revealed general visceral congestion with small submucous or subserous hemorrhages; these findings are not specific for arsphenamin death because they are associated with acute death due to various causes.

In thirteen of the seventeen cases without evidence of specific injury due to arsphenamin, the cardiovascular system and the kidneys were diseased. Myocarditis, severe mitral or aortic vascular disease, arteriosclerosis or nephritis, or more than one of these diseases, was present. Obvious signs of status lymphaticus were present in three young persons. Lobar pneumonia and signs of sepsis were present in one case.

Fatal Accidents Associated with So-Called Acute Yellow Atrophy of the Liver.—There is a total lack of agreement as to whether arsphenamin is a causative agent in the occurrence of acute yellow atrophy, and it would be useless to consider, in detail, the numerous discussions of the subject that have appeared during the last fifteen years.

Herxheimer and Gerlach[4] recently reported four cases of acute yellow atrophy that occurred during the treatment of syphilis, and they reviewed the literature dealing with cases attributed to arsphenamin. The authors believe that acute yellow atrophy occurs so frequently in syphilitic patients without arsphenamin that the relatively few cases occurring shortly after the injection of arsphenamin may be accepted as coincidental, and they concluded that there is no evidence that the condition is caused by arsphenamin. They do not think that the frequency of acute yellow atrophy has increased since the introduction of arsphenamin into therapeutics. Kutschera, in 1923, reported two cases. He thinks that summation of the effects of syphilitic toxin, arsphenamin and other toxic agents (tuberculosis) may result in acute yellow atrophy.

There is no doubt that jaundice, as will be seen later, often appears as late as several weeks after the last dose of arsphenamin, and that acute yellow atrophy occurs in syphilitic patients not infrequently without arsphenamin, which makes the investigation of the problem difficult. Nevertheless, if one sees jaundice developing repeatedly in the same case after the administration of arsphenamin, such as occurred in one case mentioned above, and furthermore, if fatal yellow atrophy frequently follows the administration of arsphenamin, one cannot avoid the conclusion that there is a connection, direct or indirect, between the administration of the drug and the occurrence of the disease.

There were eight cases in which a close relationship existed between the administration of arsphenamin and the development of jaundice which ultimately ended in death. It is more than a coincidence, perhaps, that seven of the eight patients were women; all patients had histories of syphilis or positive serologic evidence of it, and all received several doses of arsphenamin; but the exact number of doses and the amounts are not obtainable from the histories.

The onset of symptoms occurred on the next day, or as late as eleven days, after the last injection. Some of the patients in this series had moderately severe reactions without jaundice after each injection, the grave disease being introduced by nausea, vomiting, diarrhea, chills and malaise. These symptoms did not differ from those observed in numerous cases in which the injections of arsphenamin caused no other ill effects. An icteric tint of the sclera appeared the next day, or several days, after the onset of the first symptoms. The discoloration varied from involvement of the sclera alone to deep, generalized jaundice. Some patients showed only a few symptoms during the period of jaundice; but itching of the skin, occasional nausea, vomiting, and bloody or watery diarrhea were nearly always present. Death occurred after repeated convulsions, delirium or coma. In one case, death took place unexpectedly after the previous severe jaundice had cleared up almost completely. Death followed the onset of jaundice as early as two days and as late as ten weeks.

The onset and the first period of the disease in these fatal cases are clinically identical with those of cases with jaundice and recovery. The necropsy findings were the same as those previously described by several observers. Submucous and subserous hemorrhages were present; the pathologic changes were found mainly in the liver, which was small, averaging from 700 to 750 gm., flabby, and of diminished consistency. The surface was smooth, and red rather than yellow. The outlines of the lobules were plain in some cases and obscure in others; cross-sections showed mottling; the microscopic examination showed necrosis of variable extent, with hemorrhage.

In three other cases, the onset of jaundice occurred more than a month after the last injection. These are not included in the series to be discussed, though the possibility that arsphenamin was the cause cannot be denied.

Fatalities Attributed Clinically to Arsphenamin in Which the Necropsy Revealed Other Causes of Death.—In seven cases, death was attributed to arsphenamin at first, but the necropsy revealed some other cause. This illustrates the need of caution in the clinical judgment in these cases. In two cases, slight jaundice developed soon after arsphenamin treatment was begun, but sepsis was found on pathologic examination. Suppurative meningitis, due to faulty technic, was found at necropsy in two cases in which neurologic signs developed in from one to three days after the intraspinal injection of arsphenamin.

TOXICOLOGY

The toxicologic examinations were performed by Dr. A. O. Gettler. The Marsh test was used to detect

4. Herxheimer and Gerlach: Ueber Leberatrophie und ihr Verhältnis zu Syphilis und Salvarsan, Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) 68:193, 1921.

arsenic. When it was present, the mirror formed was compared with a standard arsenic mirror. The amounts found varied from 0.2 to 1.4 mg. per kilogram of tissue.

The liver was analyzed in all cases except one; in that, the brain was examined. Arsphenamin was found in ten of the seventeen cases examined in which the patients died after receiving doses of from 0.2 to 0.6 gm. of arsphenamin. In some of those fatal cases in which arsenic was detected in the liver, death followed the injection as early as two minutes, and in others as late as two hours. Death occurred later than two hours in the seven cases in which arsphenamin was not found, except in one case in which it followed the injection in twenty minutes.

SUMMARY AND CONCLUSIONS

Cats were used in experiments designed to study the gross and microscopic tissue changes produced in the liver, spleen and kidneys by arsphenamin, by arsphenamin together with mercuric salicylate, and by arsphenamin administered after chloroform. The results of these experiments indicate that repeated doses of arsphenamin, corresponding to massive therapeutic doses, produce small areas of necrosis, fatty infiltration, congestion with round cell infiltration, and occasionally cloudy swelling in the liver cells, with the evidence of fatty degeneration in the tubules of the kidneys in some cases. The poisons produced no changes in the spleen.

This tissue injury was not increased or modified when arsphenamin was combined with mercuric salicylate, in amounts corresponding to therapeutic doses in man.

When the doses of arsphenamin mentioned were administered to cats in which liver injury had been produced by chloroform, the liver regenerated at the same rate as that in the series of cats which received chloroform alone. Arsphenamin, therefore, does not appear to increase the injury produced by chloroform.

The histologic changes and the behavior of the poisoned animals do not correspond to those observed in acute yellow atrophy of the liver in man.

The classification of the toxic reactions cannot be applied rigidly. Cases showing symptoms and signs characterized by skin reaction (dermatitis exfoliativa), and those with vasomotor reaction (edema), are relatively frequent.

Twenty-nine deaths, at least, are attributed to arsphenamin, but it is almost certain that more than that number have occurred in New York during the last six years.

In twenty-one cases of the twenty-nine, death followed the injection of arsphenamin within a few hours. The liver showed no pathologic changes in seventeen cases in which necropsy was held. It is important, however, to emphasize the fact that every case of the group showed severe chronic lesions in other organs.

Acute yellow atrophy of the liver, so called, followed the administration of arsphenamin in eight cases, but no predisposing factor was found on pathologic examination which explains the etiology of the disease.

In additional cases, death was attributed clinically to arsphenamin, but the necropsy revealed some other cause.

Toxicologic analyses were recorded in seventeen fatal cases following the administration of arsphenamin.

It is concluded, on the basis of the study presented, that the majority of fatal accidents can be prevented by observing caution in individuals who show cardiovascular and renal disease, clinical evidence of status lymphaticus, or acute infectious disease (pneumonia). The fact that animals under the experimental condition described do not show acute yellow atrophy similar to that in man, and that in the fatal acute accidents in which repeated doses of arsphenamin had been given the liver did not show noticeable pathologic changes, suggests that therapeutic doses of arsphenamin do not produce noteworthy tissue damages in the liver. One cannot attribute acute yellow atrophy of the liver to a toxic effect of arsphenamin. However, as the relationship between the administration of arsphenamin and acute yellow atrophy is definite, the conclusion that arsphenamin plays an *indirect* rôle in causing acute yellow atrophy is inevitable. One cannot say with certainty whether this rôle lies in the precipitation of the condition in the presence of predisposing causes or in the efficient bactericidal action of arsphenamin, whereby a toxin is liberated. The fact that the same disease occurs in syphilis without arsphenamin suggests rather the second possibility.

HICCUP: THE WINNIPEG EPIDEMICS

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During November and December, 1919, Winnipeg experienced its first epidemic of hiccup, an extensive outbreak of at least 1,000 cases. A further, but smaller, outbreak occurred in 1922. It recurred here in November, 1924, during which epidemic a record of 1,400 cases was obtained. The population of Winnipeg and its suburbs is approximately a quarter of a million.

The disease is not notifiable. Many persons, considering it trivial, refrain from seeking medical advice, or obtain such advice over the telephone. Then, too, an age long association of the symptom with alcoholic repletion too often makes the sufferer an object of humor, and he is therefore diffident about complaining. Hence, an estimate of the number of cases, compiled from medical statistics, must fall far short of the actual figure.

EPIDEMIOLOGY

During each epidemic in Winnipeg, all the cases appeared within a period of six weeks. Cases were noted in the surrounding towns of Manitoba one week subsequent to its appearance in the city.

CONTAGION

A man, laid up with an injured ankle, developed hiccup nine days after receiving a visitor who was recovering from an attack. No other sufferer could suggest a source of infection, nor was there a definite instance in which one might trace direct contact. Four physicians who had not previously attended patients for the hiccup contracted the disease. Only twice was a record obtained in which more than a single case occurred in a household; and when two cases did occur, the onset was simultaneous.

INCIDENCE

Seasonal.—Each outbreak took place early in November, coincident with the onset of winter, reached its height by the first of December, and declined rapidly.

Age.—In the cases reported, the age of the youngest patient was 10 years; of the oldest, 87; the great majority of the cases occurred in adults.

Sex.—This is a striking feature, as more than 90 per cent. of the cases were in males.

Race.—Winnipeg is a city with a mixed population, but no race was found to be immune.

Distribution.—Cases were reported from all parts of the city and its suburbs. No cases were reported from the general hospitals, but two were noted in a soldiers' convalescent home.

IMMUNITY

Six persons affected during the 1924 epidemic had suffered a previous attack. With four the attack had occurred in 1919, and with two in 1921. Each one stated that the symptoms in the second illness, while similar to those formerly experienced, were not nearly so severe. Each one, also, had complete relief within thirty-six hours, in contrast to the previous attack, which extended over three days.

ETIOLOGY

No definite etiologic factor was established. That dietetic errors might have been concerned in the cause was considered, but no evidence of such an association was obtained. Although, in view of the greater frequency in men, special inquiry was made as to the use or abuse of alcohol, no relationship could be ascertained.

Cultures made from the nasopharyngeal secretion obtained from patients invariably yielded a streptococcus. This was an oval shaped, green-producing coccus, nonhemolytic, fermenting dextrose, lactose and maltose, and insoluble in bile. It rapidly died on subcultivation. Using the method described by Rosenow,[1] separate cultures of this strain, obtained from sixteen patients, were injected into sixteen rabbits, five of which developed myoclonic spasms of the diaphragm, intermittent in character, and lasting from one to thirty-six hours. The filtrate from cultures of this organism in fluid mediums also produced these spasms in two rabbits out of eight inoculated. These bacteriologic investigations are still being carried on.

RELATION TO INFLUENZA

Each epidemic of singultus has been associated with an epidemic of an illness of short duration with varied symptoms, at present designated, with professional aptitude, by the blanket term "influenza." The clinical picture is not that of the type of case observed during the pandemic of 1918, nor that of our yearly fall and winter visitor, the acute febrile condition known as the common cold, or grip.

During the recent epidemic, hiccup appeared the first week in November, this "influenza" two weeks later. Unlike hiccup, it occurred equally in the two sexes. The epidemic was widespread, more than one person in a household was attacked, and it would be within the mark to state that at least one fifth of the population of the city was affected. As a rule, the onset in this ailment was marked by nausea and vomiting; so striking were these symptoms that the laity promptly labeled the condition "stomach flu." In some instances there was a coryza frequently accompanied by a persistent spasmodic cough, but without bronchial symptoms. The temperature was a variable feature, never high and often subnormal, and bradycardia was a common finding. Practically all the patients, as in hiccup, complained of some tenderness of the scalp, face and neck—a symptom that also occurred during the outbreak of encephalitis of 1923, as noted by Boyd.[2] The duration of the illness was from two to six days. Few sought medical advice; the majority were able to carry on, although many suffered later from weakness.

RELATION TO EPIDEMIC (LETHARGIC) ENCEPHALITIS

The first epidemic of hiccup in 1919 was coincident with Winnipeg's first epidemic of encephalitis. For the winter season 1919-1920, the city records showed 104 cases of the latter disease, with twenty-five deaths, truly a large proportion of cases for the population, if one may judge from the incidence in other communities. During the lesser singultus epidemic, in 1921, there were reported thirty-one cases of encephalitis. In the winter season of 1922-1923, 108 cases were noted, but during that season no record was obtained of a single case of hiccup.

Three cases of encephalitis during the epidemic of 1919 were ushered in by hiccup. One patient in 1921 developed hiccup simultaneously with myoclonia of the arms, legs and abdomen. During the recent epidemic of singultus, a woman, aged 40, had an attack of herpes zoster, followed two weeks later by insomnia and excitability. This condition lasted for six days, when she developed a hiccup, together with myoclonic spasms of the abdominal muscles, and she then rapidly became lethargic. The hiccup continued throughout the lethargic period of two weeks, and at intervals throughout a convalescent period of three weeks. Here, the one patient presented herpes zoster, hiccup and lethargy, indicative of a lesion of the central nervous system.

There was a striking similarity between the epidemics of hiccup and encephalitis in the difficulty to trace contact; in the records of but a single case in a home, and also in the seasonal incidence.

No evidence was obtained locally of any case of encephalitis in which there had been a previous attack of hiccup.

SYMPTOMS

The onset was sudden. Hiccup often began during sleep. Clonic spasms of the diaphragm occurred at the rate of from four to twenty a minute, continued for variable periods of time, from a few minutes to eighteen hours, and ceased for similar periods of time, only to recur. The entire illness extended over a period of approximately seventy-two hours. One patient had complete relief in an hour, and in another case, the spasms continued at intervals for eleven days. Occasionally the spasms were double or triple in character. During the epidemic of 1919, the spasms were more severe, with shorter intervals of rest. During the recent epidemic, patients, as a rule, suffered for from fifteen minutes to an hour, with quiet intervals of from one to three hours.

Marked constitutional symptoms were absent. The majority of the patients did, however, complain of a soreness of the muscles of the abdomen and chest, evidently a result of the physical effort entailed by the spasms. About half the patients suffered from an occipital headache, and approximately one in four from nausea and vomiting, the vomiting occurring soon after the onset of the spasms. The appetite was unimpaired, although difficulty of mastication and deglutition during attacks was the experience of a few. Many slept as usual, while some could sleep only during the quiet

1. Rosenow, E. C.: J. Infect. Dis. 32:41 (Jan.) 1923.

2. Boyd, W.: Personal Communication to the author.

intervals between attacks. In others, the spasms continued during sleep (an observation made by relatives). A frequent and interesting symptom was a hyperesthesia of the scalp, face and neck, often unilateral, and sometimes followed by a neuritis affecting the nerves supplying these parts. Many said they felt as though the side of the head had been sunburned; others, as though the hair was standing on end. The neuritis, though mild, had a tendency to persist for from one to four weeks. Patients having the spasms for more than three days suffered from considerable physical exhaustion; and it was usual for many patients to complain of a subsequent weakness, unnoticed during the attack, and out of proportion to the mild constitutional symptoms that had been present.

All cases showed some congestion of the pharynx, but there was no evidence of increased nasopharyngeal secretion. Five cases, which proved interesting, showed cyanosis; the patients had the peculiar dusky, mottled appearance of the skin seen in so many patients during the pandemic of influenza. Each of these patients complained of hyperesthesia of the face and neck, and also of a sense of constriction of the throat, though examination of the throat revealed nothing except congestion. The spasms were not frequent enough in any of these five cases to impair respiration, and the cyanosis did not disappear in the quiet intervals, but cleared up within six hours of the termination of the hiccup. The appearance of these patients was more alarming than their subjective symptoms warranted; in fact, aside from the discomfort of the spasms and the sense of some constriction of the throat, each one stated that he "felt fit."

Three patients exhibited myoclonic spasms of the rectus abdominis, a symptom that, I believe, is present in many more cases than noted, and is overlooked because few patients come under physical examination. Five patients, as previously quoted, developed hiccup with encephalitis.

Temperature.—The temperature as recorded was normal or subnormal, a temperature of 97 F. by the mouth being a frequent finding. It may be that a rise of temperature occurred during the initial stage of the attack when the patient was not under observation. The findings noted represent the temperature of various persons taken from the second to the tenth day of the illness.

Pulse.—The pulse was slow, in some cases 50, and in no case seen over 75. The rhythm was undisturbed. Two physicians affected observed that during the attack their pulse was ten beats below normal. The slow pulse rate was a surprising feature. One would naturally have expected an increased rate, in view of the amount of physical effort entailed by the continued spasms.

Blood.—Blood counts on fifteen patients gave a leukocyte count of from 8,000 to 12,000, with an average of 10,000. The increase was in the polymorphonuclears. Blood cultures taken from six patients were negative.

Urine.—No urinary changes were noted.

Respiration.—The respirations were from 15 to 20 a minute, with an average of 18. The more severe type of case showed a slightly slower respiration than normal.

TREATMENT

"Hold your breath some time, or gargle your throat with water, or, if it still continues, tickle your nostrils with a feather and sneeze"; such was the successful advice tendered a fellow guest at a banquet as a cure for hiccup, by the physician Eryximachos, of Plato's time. The number of mechanical methods used now is legion.[3] It is doubtful whether there is any other symptom in medicine to which has been applied so many and diverse methods of treatment. Various sedatives by the mouth and subcutaneously, ether, chloroform, amyl nitrite, epinephrin, atropine, even injections of foreign protein, all found favor with different persons during the recent epidemic. Naturally, the last remedy applied before the spasms ceased appealed, to the individual concerned, as the best. Benzyl benzoate checked the spasms in some cases and found the greatest favor in the hands of the physicians; mechanical measures also succeeded at times in giving temporary relief, while rest, though seldom taken, was of value.

Without treatment, the spasms ceased at intervals. Moreover, the illness was self-limited; therefore it is difficult to evaluate any method of therapeutics that may have been used in these epidemics.

PROGNOSIS

No fatal result from an attack of hiccup has been reported in the local epidemics. Two of the five cases that were associated with encephalitis proved fatal. A record was obtained of three patients who dated continued ill health from an attack of hiccup in 1919; curiously enough, the chief complaint of each was insomnia. The great majority of the patients apparently experienced no later manifestations.

The nature of the relationship of epidemic hiccup to epidemic encephalitis is not yet determined. To find disastrous residua of even supposedly mild cases of the latter disease is now a frequent experience. There is a significance in the relationship, and one is justified in hesitating to classify the former ailment as a trivial affection.

COMMENT

In these epidemics, many features present themselves for consideration: the difficulty of tracing direct contact; the high incidence in males; the association with a streptococcus, and the relationship to influenza and encephalitis. Then, too, there are the interesting symptoms such as the intermittent character of the spasms, the neuritis, slow pulse and low temperature findings.

The clinical evidence is such as to encourage a further investigation of the theory that there is, widespread in the community, a disease, suggestive of an infection of the central nervous system, with symptoms varying from those of a mild, acute neuritis to those of epidemic encephalitis, and including hiccup.

820 Broadway.

3. Epidemic Hiccup, editorial, J. A. M. A. 76: 249 (Jan. 22) 1921.

Infant and Maternal Deaths in Buffalo.—The Buffalo Foundation has just completed a study of infant and maternal mortality in that city. The study was conducted in cooperation with the city registrar of vital statistics and was based on an analysis of department of health records for 1922 and 1923. One interesting fact brought out was the wide variation in the death rates for babies in the different wards of the city, four wards having rates under 60 per thousand live births, and three wards rates above 131. Knowing now where the problem is most serious, Buffalo plans to eliminate so far as possible the conditions which threaten the lives of babies.

UNILATERAL HYPERHIDROSIS AND EROSION OF TEETH FOLLOWING PAROTID ABSCESS

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Excessive localized sweating has long been recognized, the first detailed observation being that of Nitzelnadel, who in 1867 reported a case of exophthalmic goiter in which the left side of the face alone was found to perspire freely. Raymond, in 1888, presented a classification of hyperhidrosis of the face which has been accepted by New and Bozer as recently as 1922.

Facial ephidrosis may accompany disease of the central nervous system (hemiplegia, general paralysis, glioma, tabes dorsalis or spinal cord injury); it may accompany structural or functional pathologic changes in the cervical symphathetics (round cell infiltration of ganglions or disease of the superior mediastinum or cervical region). It has occasionally been reported in general debilitating disease (diabetes mellitus or obscure abdominal conditions).[1]

Adamkiewicz[2] found that fibers controlling the secretion of sweat are present in the facial nerve. Faradic stimulation of this nerve in healthy persons caused profuse secretion of sweat in the areas supplied. Partial facial paralysis with hyperhidrosis has been associated with muscular twitching of the affected side, suggesting a pathologic irritation of the secretory fibers in the seventh nerve. On the other hand, cases of excessive sweating have been reported in the presence of complete paralysis of the nerve.

Reflex hyperhidrosis and hyperhidrosis due to psychic influence are relatively common, although unilateral distribution is infrequent enough to merit attention. Unilateral reflex sweating from stimulation of sensory nerves, particularly the nerves of taste or smell, has been observed from time to time. Brown-Séquard[3] reported several cases, one of the patients being himself. Unilateral sweating accompanying the act of mastication has been mentioned especially by Pokroffsky[4] and by New and Bozer,[5] who report three such cases. Wiedemeister[1] reports a mental case presenting left facial hyperhidrosis, in which the sweating was increased by lively conversation.

Several cases are on record in which there has been either temporary or permanent unilateral sweating of the face with no demonstrable cause. Usually, although not invariably, this has occurred in persons of more or less unstable nervous temperament.

The phenomenon has not infrequently been observed in disease of the fifth and seventh cranial nerves (neuritis and trifacial neuralgia).[1]

Localized sweating accompanying disease of the parotid gland is fairly common. It is usually associated with functional impairment of that organ. One usually obtains a history of abscess or injury. Occasionally the condition follows duct obstruction by salivary calculus. Of three patients seen by New and Bozer, two had had parotid abscess, while the third had suffered an injury in this region.

1. Lloyd, J. H., in Twentieth Century Practice, New York, William Wood & Co. 3:435-467, 1897.
2. Adamkiewicz: Die Secretion des Schweisses, Berlin, 1878.
3. Brown-Séquard, C. E.: Production de sueur sur l'influence d'une excitation vive des nerfs du goût, Compt. rend. Soc. de biol. 2:104, 1850.
4. Prokoffsky: Hyperhidrosis unilateralis, Berl. klin. Wchnschr. 12:164, 1875.
5. New, G. B., and Bozer, H. E.: Minnesota Med. 5:652 (Nov.) 1922.

The case here reported conforms generally to the type described as following injury or disease of the parotid gland, and would therefore scarcely deserve mention as far as parotid ephidrosis is concerned, but is of distinct interest because of an additional pathologic condition, which was secondary to the parotid atrophy and was the patient's chief complaint.

Mr. E., seen in December, 1922, had been operated on by Dr. J. S. Horsley of Richmond in 1917 for duodenal ulcer and appendicitis. The appendix had been removed and a gastro-enterostomy performed. Before discharge he developed a right parotid abscess, which was drained. When seen in 1922, the patient had few symptoms referable to the digestive tract, but for several weeks had noticed an unpleasant sensitiveness of the teeth throughout the left side of the mouth. During the preceding two years, the left half of the mouth had had a dry feel, with a sour, acid taste. He had noticed that the left side of the face perspired freely whenever he masticated food.

Examination disclosed that the teeth in both the upper and the lower jaw were evenly worn throughout the left side roughly half way down to the gums, with flattened, polished articular surfaces on which a cross-section of the gross anatomy of the teeth could be readily traced. This was most pronounced over the molar teeth, the erosion becoming less advanced anteriorly. The articular surfaces were distinctly tender to the touch. The teeth in the right half of the mouth were quite normal.

In the course of examination, attempts were made to collect separately the secretion from the two parotid glands. While the flow from the right was reasonably profuse, no saliva whatever could be obtained from the left. There was no evidence of obstruction of the duct. The administration of 6 mg. of pilocarpin produced a salivation so profuse that saliva virtually gushed from the duct on the right, but the left remained absolutely dry. The sublingual and submaxillary glands apparently functioned normally. Abundant saliva was obtained from the floor of the mouth after that from the right parotid had been diverted.

Mixed saliva from the mouth was normal in all respects. It was slightly alkaline to litmus, with specific gravity 1.004, and traces of mucus and of thiocyanate. The biuret reaction was positive. Starch digestion proceeded normally.

The saliva obtained from the right parotid gland was alkaline in reaction. Litmus paper applied to the mouth itself showed the gums on both sides to be acid in reaction, owing, apparently, to the glands situated in the gums themselves. The upper portion of the tongue also was acid, probably from contact. Below the tongue the mucous membrane was slightly alkaline, and the saliva in the floor of the mouth was distinctly alkaline. The erosion of the teeth on the left side was due apparently to failure of the atrophied left parotid to neutralize the acid secretion formed in the gums.

During the physical examination, the left cheek was decidedly more moist than the right. Following the administration of pilocarpin there was some general diaphoresis, but this was distinctly more marked over the left cheek.

New and Bozer have noted that if the etiologic factor causing hyperhidrosis is of peripheral origin, sweating after the administration of pilocarpin occurs from two to three minutes earlier in the area affected by localized hyperhidrosis than in other parts of the body. If, however, hyperhidrosis is due to changes in the central nervous system, sweating appears in all parts of the body at the same time. This method has been used in attempting to determine whether certain neurologic findings associated with localized hyperhidrosis were due to lesions of the central or the peripheral nervous system. In the case under consideration, sweating began in the left cheek.

SUMMARY

Unilateral facial hyperhidrosis not infrequently follows injury or disease of the parotid gland. In the

case here described, symptoms developed after recovery from parotid abscess; and, as far as the ephidrosis is concerned, it shows no remarkable points of difference from others previously mentioned, or from the three cases reported recently by New and Bozer.

An additional observation, which, indeed, was the patient's chief complaint, has not been mentioned so far as I have been able to determine in the literature on this subject. The patient complained of unusual tenderness of all the teeth on the affected side, objectively accounted for by extensive unilateral erosion of the articular surfaces with destruction of fully half the exposed portion of the molar teeth. This appears to have been due to complete absence of parotid secretion on the affected side, with resulting failure of neutralization of the acid secretion from the glands situated in the gums.

Medical Arts Building.

STUDY OF TWO HUNDRED AND TWO CASES OF HAY-FEVER *

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In presenting these observations of a series of 202 seasonal pollen hay-fever studies in 1923, none of which were complicated with food, epidermal or miscellaneous protein sensitivity, I will discuss, in detail, the technic of the various procedures employed in their diagnosis and treatment, as well as the results obtained.

Before one can undertake intelligently to diagnose and treat hay-fever, one must have a sound botanic knowledge of the region in which the hay-fever to be treated occurs. To obtain this information, it is necessary to make a complete survey of the flora in this particular locality, a chart being kept on which are noted the various pollen bearing plants, their seasons of pollination, the dates of the first and last pollination, their genera, and whether they are air-borne or insect pollinating. Since it is impossible for the clinician to do this, it becomes necessary to employ a competent botanist, whose duty it shall be to make the necessary survey, collect the pollens, and in certain instances to make special surveys. A general survey of California was made by Prof. H. M. Hall for Dr. Grant Selfridge [1] in 1916, and of the Los Angeles district in particular at a later date. To them we are indebted, as it has simplified the work of our botanist, making it possible for us to collect a great variety of pollens in large quantities. Similar surveys have been made by Watson and Kibler [2] in Arizona, Mullin [3] in Colorado and Key [4] in Texas, as well as by Duke [5] in Kansas.

TECHNIC OF POLLEN COLLECTING

The technic of pollen collecting, as carried on by us, is as follows:

The flowering stalks of the grasses or weeds are cut with a sharp knife, sickle or pruning shear midway between the flowering top and the root. They are then immediately placed in a bucket of water and carried to the laboratory, where the light and temperature are comparatively constant and the air is free from currents. Here they are transferred to quart fruit jars, which are placed on clear pieces of plate glass, and the jars are filled with clear water, which is changed twice weekly. Each day the flowers are quietly shaken and the pollen scraped up with an ordinary glass slide and sifted through bolting cloth or 200 mesh screen, through which the pollen passes, leaving the débris behind. The pollen is then placed in ether,

Pollens of Southern California

SPRING POLLENS

Bermuda grass (Cynodon dactylon)
Rye grass (Lolium perenne)
Kentucky blue grass (Poa pratensis)
Brome grass (Bromus carinatus)
Canary grass (Phalaris canariensis)
Fescue grass (Festuca elatior)
Wild oats (Avena fatua and barbata)
Melic grass (Melica imperfecta)
Red top (Agrostis alba)
Orchard grass (Dactylis glomerata)
Johnson grass (Andropogon halepensis)
Barley grass (Hordeum murinum)
Darnel (Lolium temulentum)
Bunch grass (Stipa setigera)
Broncho grass (Bromus villosus)

Plants Other than Grasses:

Southern California black walnut (Juglans californica)
Live oak (Quercus agrifolia)
Fremont cottonwood (Populus fremontii)
Curly dock (Rumex crispus)
Canaigre dock (Rumex hymenosepalus)
Monterey cypress (Cupressus macrocarpa)
English plantain (Plantago lanceolata)

SUMMER AND FALL GRASSES

Salt grass (Distichlis spicata)
Giant wild rye (Elymus condensatus)
Slender wild rye (Elymus triticoides)
Bermuda grass (Cynodon dactylon)
Rye grass (Lolium perenne)

Plants Other than Grasses:

Mugwort (Artemisia vulgaris)
Western ragweed (Ambrosia psilostachya)
Sagebrush (Artemisia tridentata)
False ragweed (Franseria acanthicarpa)
Tumbleweed (Amaranthus graecizans)
Cocklebur (Xanthium pennsylvanicum)
Oldman (Artemisia californica)
Russian thistle (Salsola kali)
Rough pigweed (Amaranthus retroflexus)
Silverscale saltbush (Atriplex argentea)
Cattle saltbush (Atriplex polycarpa)
Quail brush (Atriplex lentiformis)
Indian hair tonic (Artemisia dracunculus)
Franseria tenuifolia.

stirred with a glass rod, and then allowed to stand until the ether comes to the surface, the pollen precipitating. The supernatant fluid is then poured off and the pollen dried by evaporation at room temperature, after which the dry pollen is again sifted through a 200 mesh copper gauze screen and placed in glass stoppered bottles until required. Growth of molds or decomposition has never occurred in pollen that was treated by this method. The object of the ether extraction is to extract fat and moisture contained in the pollen.

The pollens that are most common to southern California, and their order of importance, are listed in the accompanying tabulation. They are only part of approximately 128 varieties common in this locality.

PREPARATION OF POLLEN EXTRACTS

Until two years ago, the method described by Walker [6] (that of using a 12 per cent. alcoholic physiologic sodium chlorid solution) was employed with satisfactory results, but since then we have been using the glycerol salt method [7] described by Clock.[8] The latter

* Read before the American Allergic Society, June 25, 1923.

1. Selfridge, Grant; and Hall, H. M.: Spasmodic Vaso-Motor Disturbances of the Respiratory Tract, with Special Reference to Hay-Fever, California State J. Med. 14: 164 (April) 1916.
2. Watson, S. H., and Kibler, C. S.: Etiology of Hay-Fever in Arizona and the Southwest, J. A. M. A. 78: 719 (March 11) 1922.
3. Mullin, W. V.: Pollen and Hay-Fever—A Regional Problem, Tr. Am. Acad. Ophth. & Oto-Laryngol., 1922.
4. Key, S. N.: Texas State M. J., January, 1923.
5. Duke, W. W., and Durham, O. C.: Botanic Survey of Kansas City and Neighboring Rural Districts, J. A. M. A. 82: 939 (March 22) 1924.
6. Walker, I. C.: Sensitization and Treatment of Bronchial Asthmatics with Pollens, Am. J. M. Sc. 157: 409 (March) 1919.
7. New and Nonofficial Remedies, J. A. M. A. 79: 1803 (June 10) 1922.
8. Clock, R. O.: A Stable Pollen Antigen, J. Infect. Dis. 21: 387 (Oct.) 1917.

method has given very satisfactory results, as evidenced by the stability of the product both in the retention of its antigenic power and in its nitrogen content. The antigen is standardized by determining its nitrogen content and diluting it so that each cubic centimeter contains 1 mg. of nitrogen, which is the standard dilution from which all other dilutions are made. Sterilization is accomplished by filtering through Buchner and Berkefeld filters. Sterility tests have been found unnecessary, since repeated tests have demonstrated that bacteria do not grow in the concentration of glycerin and salt present in these solutions.

The usual procedure in accomplishing a diagnosis is as follows:

(*a*) A detailed personal and clinical history.
1. Age of onset.
2. Season, date of expected attack and usual duration.
3. Family history as to allergy.
4. Personal history as to allergy.
5. Geographic location of residence with survey of flora of that vicinity.
6. Ascertaining the specific kind and relative amount of pollen about the patient's home, by the plate method.

(*b*) Skin tests with appropriate pollens by the scratch method (cutaneous method), which is the method of choice in our laboratory. Having employed the intracutaneous method in a series of cases, for comparative purposes, we found that the former gave as good reactions as the latter, with less liability to constitutional reactions. This statement is not in accord with other workers; namely, Mullin [9] and Brown.[9] Pollen extract solutions are used for testing purposes, usually in the strength of 1:100, the dry pollen itself never being used, as it has been our experience that the reactions obtained with the latter are not as marked as those with the former.

A reaction, to be positive, consists of an irregular urticarial wheal, at least 0.5 cm. in diameter, surrounded by an area of erythema. One must not be misled by pseudoreactions which simulate a true reaction. The former may present itself as a regular circumscribed wheal or an area of erythema, and never has pseudopodia, which are characteristic of a true reaction. Thus, the possibility of error in interpreting reactions is not infrequent when attempted by inexperienced workers. Larsen, Paddock and Alexander [10] came to the following conclusions with regard to the factors modifying the allergic skin reactions:

The skin reactions are influenced by the following factors:
(*a*) The preparation used.
(*b*) The method of application.
(*c*) The length of the scratch made.
(*d*) The site of injection.
(*e*) The degree of cellular sensitivity.
(*f*) The amount of protein brought into contact with the cells and the amount of solution injected.

In our studies, we have seen only one constitutional reaction with the scratch or cutaneous method in more than 3,000 patients, while many constitutional reactions by the intracutaneous method have been observed in the hands of other workers, as well as several in our own practice. As a result, therefore, we believe that the former method is much safer, yielding results comparable to those of the latter.

9. Brown, A.: Studies in Specific Hypersensitiveness: The Diagnostic Cutaneous Reaction in Allergy, Comparison of the Intradermal Method (Cooke) and the Scratch Method (Schloss), J. Immunol. 7:97 (March) 1922.

10. Larsen, N. P.; Paddock, R., and Alexander, H. L.: J. Immunol. 7:81 (March) 1922.

TREATMENT

Before treatment is instituted and after skin tests have been made, one should compare the pollinating dates of the pollens of the flora to which the patient reacted with the date of onset of symptoms. This can readily be accomplished by studying the field reports of the botanist. This coordination of the results of the tests with the patient's history and the botanist's report is an extremely important point which, in spite of positive skin reactions, may spell the difference between the success and failure of treatment.

It has been stated by various writers, including Goodale,[11] Scheppegrell,[12] and Cooke and Vander Veer,[13] that a patient sensitive to any grass may be desensitized by an extract prepared from any other member of the same grass family, this being particularly true of timothy. Our personal experience, as that of others, namely, Bernton,[14] Watson and Kibler,[2] takes exception to the foregoing statement. A series of fifteen cases was treated during the past year with pollen of timothy. Timothy does not grow in this vicinity, and the patients so treated did not react to this pollen but did react to other pollens of the same grass family; namely, orchard grass and red top. The uniformly poor results of our treatment in this group of cases conclusively proved to us that the statements made by Goodale and the other authors mentioned were incorrect, at least in this locality.[15]

Preseasonal desensitization is the method of choice, whenever possible, but seasonal desensitization should be attempted in those cases in which the patients are seen too late for treatment by the former method, as a fair percentage are given partial if not complete relief by this method. Each season gives us added encouragement because of our increased knowledge of the common pollen offenders of this vicinity and because of the experience accumulated as to dosage, with the result that each year results of treatment are better.

Treatment is usually begun about sixteen weeks prior to the onset of symptoms, and administered at weekly intervals and occasionally at five day intervals. Walker's schedule of treatment is followed with modifications to meet the individual requirements, particularly when reactions occur, whether local or constitutional; then it is our rule always to repeat the dose instead of increasing it.

It has been our experience in this vicinity that at least 87 per cent. of hay-fever sufferers are multiply sensitive, which makes it almost impossible to treat with a single pollen extract as suggested by Walker,[16] who believes that the maximum injection should consist of from 2,000 to 2,500 pollen units, and others who assert that 1,400 units is sufficient. Owing to this frequency of multiple sensitivity, it has been our rule to incorporate never more than three pollens in a single antigen, but to prepare as many antigens as are necessary to meet the patient's needs.

The initial dosage is best determined by the reactions obtained by testing with the various dilutions of the pollen antigen with which the patient is to be treated.

11. Goodale, J. L.: Pollen Therapy in Hay Fever, Boston M. & S. J. 172:42 (July) 1915.

12. Scheppegrell, William: Boston M. & S. J. 177:42 (July) 1915.

13. Cooke, R. A., and Vander Veer, A., Jr.: Human Sensitization, J. Immunol. 1:201 (June) 1916.

14. Bernton, H. S.: Treatment of Seasonal Hay-Fever and Some Possible Causes of Failure, J. A. M. A. (May 5) 1923.

15. Pineas, George: Results of Treatment in a Series of Cases Treated with Timothy Extracts That Were Sensitive to Ray Grasses, etc. (unpublished).

16. Walker, I. C.: Frequent Causes and the Treatment of Seasonal Hay-Fever, Arch. Int. Med. 28:71 (July) 1921.

Usually the first treatment [9] consists of 0.1 c.c. of that dilution next higher than the one that gave a positive skin reaction; or, in other words, the first dose is 0.1 c.c. of the strongest dilution that failed to give any skin reaction whatever, no matter how slight. Most of the patients treated in this series of 202 cases reacted to a dilution of 1:10,000, and treatment began with the dilution of 1:20,000.

The 202 cases in this study were not only followed through an entire course of preseasonal desensitization, but each of them, at the end of their normal hay-fever season, was either seen in person or answered a questionnaire relative to the results obtained. Thus we were able to check up every case here reported.

SOURCE OF MATERIAL

The entire group is made up of private patients and therefore subject to exceptionally good control. All ages were represented, and all ages of the first four decades of life are almost equally liable, although the period of greatest liability in this series was in the first decade, declining gradually up to the fourth decade, after which there was not a single instance of history of onset after the age of 40.

SEX

Most writers agree that the two sexes are equally liable, in which opinion I concur. In this series there were 112 males, or 55.4 per cent., and ninety females, or 44.6 per cent., a slightly greater percentage of the former. Perhaps this inequality would not be so great if the series were one of a thousand cases instead of 202.

SEASON

There are definitely three seasons in southern California. The first season begins the early part of January and continues until March 1. The pollens that are prevalent during this season are the tree group, of which the chief offenders are California black walnut (*Juglans californica*), English walnut (*Juglans regia*), live oak (*Quercus agrifolia*), scrub oak (*Quercus dumosa*), Freemont cottonwood (*Populus fremontii*) and Monterey cypress (*Cupressus macrocarpa*). The pollen grains of these trees are rather large, and as a result are not a great factor in the production of hay-fever, excepting to those residing in their immediate vicinity. These trees are used extensively for shade and for ornamental purposes, and are in great abundance in this vicinity. Sensitization to this group represents the smallest percentage of the entire series in that there were only eleven cases, or approximately 5.4 per cent.

The second season begins on or about March 1 and continues to the latter part of June. The first to pollinate in this season are wild oats (*Avena fatua*), broncho grass (*Bromus villosus*), canary minor (*Phalaris canariensis*), ray grass (*Lolium perenne*), melic grass (*Melica imperfecta*) and last, but most important, Bermuda grass (*Cynodon dactylon*), orchard grass (*Dactylis glomerata*), red top (*Agrostis alba*), and fescue (*Festuca elatior*). In this group are included two grasses that have practically a perennial pollinating season. They are Bermuda (*Cynodon dactylon*) and ray grass (*Lolium perenne*). Selfridge [17] believes that the latter is the most important hay-fever producer on the Pacific Coast. However, our own experience is that, although it is a prominent and frequent offender, it is not as frequent an offender as Bermuda grass, as proved by the fact that in this series there were seventy-two, or 36 per cent., who reacted to this grass and were treated with it. It is a very sturdy grass, grows practically the year round, and is widespread throughout the entire Southwest. Ray grass reactions were obtained in fifty-four, or 27 per cent., of the cases.

The third season begins the latter part of June and is the longest of the three seasons, lasting to about the first part of December, depending on the onset of the rainy season and the appearance of frost. The earliest of this group to pollinate are the slender wild rye (*Elymus triticoides*), giant wild rye (*Elymus condensatus*), Johnson grass (*Andropogon halepensis*), the atriplexes, *Franseria acanthicarpa* and others of the *Franseria* group; then the Western ragweed (*Ambrosia psilostachya*), cocklebur (*Xanthium pennsylvanicum*) and lastly the artemesias, of which mugwort is the earliest, with a pollinating season from July to October, and *Artemisia californica* or Oldman and *Artemisia tridentala*, which pollinate up to or about November 1. During this period, Bermuda grass again becomes very active and continues to the end of the pollinating season. Of the patients sensitive to this group there were seventy-six, or 38 per cent., who reacted to false ragweed (*Franseria acanthicarpa*); fifty-nine, or 28 per cent., reacted to mugwort (*Artemisia vulgaris*), with an equal percentage reacting to sagebrush (*Artemisia tridentala*).

MULTIPLE SENSITIZATION

Multiple sensitization has been the rule rather than the exception in our experience in the hay-fevers of the Southwest. Of the entire group, only forty-one, or 20.2 per cent., gave reactions to only a single pollen. The remainder were sensitive to from three to fifteen different pollens, leading us to believe that treatment based on the assumption of group reactions would not be as satisfactory as treatment based on the use of the pollens to which the patient is actually sensitive, the reason for this being that patients who showed multiple sensitization gave reactions to pollens of various genera.

REACTIONS

Reactions incidental to the treatment were of two types: local and constitutional. By a local reaction is meant one in which there is either a marked area of erythema or local edema or both about the site of injection. This may occur immediately following or within twenty-four hours of the time of injection. Constitutional reactions are those in which hay-fever, asthma or giant urticaria occur usually within twenty-four hours of the time of treatment. Local reactions occurred in 132 of the patients treated, while constitutional reactions occurred seventeen times. Included in the constitutional reactions were three with giant urticaria, one with eczema, eight with asthma and five who had hay-fever. All of the reactions mentioned were controlled by the use of epinephrin chlorid (1:1,000) in from 0.5 to 1 c.c. doses. The local reactions were controlled by the application of dilute alcohol solutions.

It was a noticeable fact that when we attempted to increase the dosage rapidly at intervals of less than seven days the reactions were most severe, although reactions did occur in numerous instances in which the treatment was given at the regular weekly intervals. It is interesting to note that the greatest percentage of reactions occurred in those patients who received

17. Selfridge, G.: Vaso-Motor Disturbances of the Nose, with Special Reference to Hay-Fever, with a Report for the Year 1919, Laryngoscope 30: 611 (Oct.) 1920.

the greatest measure of relief, which is in accord with the experiences of others, such as Rackeman [18] and Bernton.[14]

RESULTS OF PRESEASONAL IMMUNIZATION

Careful analysis of the results obtained by preseasonal immunization with pollen extracts in all types of seasonal hay-fever by all workers who have reported their results from year to year shows that they have been quite uniform. The difficulty in interpreting the results of these workers has been due to the lack of uniformity in classification. It is evident that it will be impossible to obtain statistics of scientific value until all workers agree on such a uniform classification. Vander Veer [19] reports 1,744 cases, in which he obtained complete relief in 23 per cent., marked relief in 49 per cent., slight relief in 18 per cent. and no relief in 10 per cent.; while Rackeman [18] reports ninety-one cases, in which he obtained complete relief in 9 per cent., considerable relief in 62 per cent., and no relief in the remaining 28 per cent. Caulfeild [20] reports forty-three cases, in which he obtained complete relief in 46.5 per cent., practically complete relief in 42.6 per cent., marked improvement in 11.6 per cent., and little or no benefit in 7 per cent., while the hay-fever was aggravated by the treatment in 2.3 per cent.

Our own results compare favorably with those quoted above. In Group 1, sixty patients, or 29.6 per cent., obtained complete relief of their symptoms, and of this group forty-three, or 71.6 per cent., gave local reactions during treatment. In Group 2, eighty-one patients, or 40.1 per cent., obtained practically complete relief, meaning that they were free of symptoms to such a degree that it was possible for them to go about their everyday duties, with very little if any discomfort, and required no local treatment during their hay-fever season. In this group fifty-nine, or 72.8 per cent., gave local reactions during treatment. In Group 3, forty-four patients, or 21.4 per cent., were relieved of the severity of their symptoms to the extent of at least 50 per cent. as compared with that of former years, meaning that the severity of the attacks was lessened, the duration was shorter, and the symptoms were not severe enough to prevent them from carrying on their daily duties. There were twenty-six, or 59.9 per cent., of this group who gave local reactions. In Group 4, seventeen patients, or 9.1 per cent., obtained no relief whatever, and in one or two instances symptoms were aggravated by the treatment.

Thus, from these results and those obtained by other workers, we feel that much hope and promise of considerable relief may be offered the greater percentage of hay-fever sufferers, although we do not feel that we have as yet reached the point at which one can hold out the offer of permanent immunity.

CONCLUSIONS

1. A thorough botanic survey of all the air-borne plants is necessary before one can intelligently diagnose and treat hay-fever.

2. The method of collecting pollens and their preservation as described above is the most satisfactory one at hand.

3. A correct diagnosis is essential for good results and is simplified by a thorough study of the history in each individual case, in connection with a local pollen survey and plating, if necessary.

4. The scratch method (cutaneous method) gives as good reactions as does the intracutaneous method, with less liability to constitutional reaction.

5. The treatment on the assumption of group reaction is not as satisfactory as treatment based on tests.

6. Preseasonal desensitization is a method of choice, and gives the best results when properly administered.

7. Multiple sensitization is common in this vicinity. At least 87 per cent of series were of that type.

8. Bermuda grass (*Cyndon dactylon*) is the most frequent offender in the Southwest.

9. Reactions incident to treatment occurred most frequently in the patients who obtained the greatest amount of relief.

10. The results obtained by preseasonal immunization compare favorably with those of other workers, and are quite uniform in that the average obtained by all workers is about 23 per cent. complete relief.

11. From the results obtained by all workers, much hope and promise of relief may be offered to the hay-fever sufferer.

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18. Rackeman, F. M.: Specific Treatment of Hay Fever, Boston M. & S. J. 182:295 (March) 1920.
19. Vander Veer, A., Jr.: Am. J. M. Sc. 164:97 (July) 1922.
20. Caulfeild, A. H. W.: Desensitization of Hay-Fever Patients by Injection and Local Application, J. A. M. A. 79:123 (July 8) 1922.

BASAL METABOLISM IN ORGANIC HEART DISEASE WITH DECOMPENSATION

PRELIMINARY REPORT *

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The object of our investigation was to determine what, if any, was the relation of the basal metabolic rate to the various stages and types of cardiac decompensation. An effort was to be made to follow these cases through from the time of admission to the hospital to the time of discharge, and to correlate the clinical and laboratory findings in an attempt to arrive at definite conclusions and deductions for the purpose of utilizing basal metabolic readings as aids in the diagnosis, management and prognosis of decompensated heart cases, very much after the manner of such determinations in the dysfunctions of the thyroid gland.

Whereas there are numerous reports relating to the basal metabolism in diseases of the thyroid gland, in particular, and to a lesser extent in the various fevers, anemias, nephritis and obesity, comparatively little is to be found regarding the basal metabolic rate in heart muscle failure.

McCann,[1] in his recent review of "Calorimetry in Medicine," mentions only a few references to the basal metabolic rate in cardiac cases, of which only two works bear relation to the present subject.

The reason for such deficiency in general is not very evident. Perhaps the chief drawback to conduct such determinations has been, as in our case, the great difficulty in moving from one place to another such acutely ill patients as those with symptoms of cardiac failure. Too often it is out of the question to subject severely dyspneic and cyanotic patients to the test when such determinations would be most valuable, and thus much

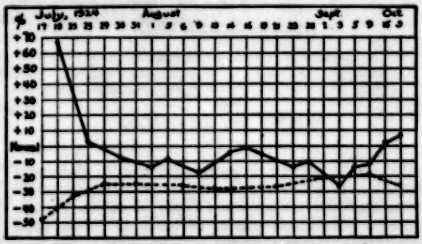
* From the Medical Service and the Otto Baer Fund for Clinical Research of the Michael Reese Hospital and the Nelson Morris Memorial Institute for Medical Research.

1. McCann, W. S.: Calorimetry in Medicine, Medicine 3:1-98 (Feb.) 1924.

important information has been lost. This was the chief obstacle to our investigation at the beginning, but we hope to overcome some of this by employing, in the future, a portable basal metabolism machine to obviate some of our present difficulties.

Peabody, Meyer and Du Bois [2] reported a number of basal metabolism readings in cardiac and renal cases. Of twelve patients with dyspnea, nine showed a distinct rise of their metabolism. Of five cases with no dyspnea, only one showed an increase of the basal metabolic rate, and this was in a restless, alcoholic person. Again, Peabody, Wentworth and Barker,[3] in another report on the basal metabolism of patients with heart failure, cite twenty-four patients, ten of whom were in good general condition, and who showed an average basic metabolic rate increase over normal of 12.8 per cent. It is to be noted here that this group included four patients whose basal metabolic rate ranged from 1 to 6 per cent. below normal. The authors' conclusion was that there seemed to be no definite or constant finding in the basal metabolism of cardiac cases.

More recently, Hamilton [4] reported a few cases of uncomplicated decompensated heart disease in which



Relation of the basal metabolic rate to the vital capacity in Patient R. J.: solid line, basal metabolic rate; broken line, vital capacity; decompensation from July 17 to July 29; no edema from July 30 to September 9; edema of ankles from September 15 to October 3.

there was rather marked increase of the basal metabolic rate. Still later, Dieuaide [5] reported one case of paroxysmal tachycardia in which the basal metabolism was increased 16.7 per cent. above normal in one paroxysm. The basal metabolic rate in the same person during sinus rhythm was normal. The author attributed this increase as probably being due to "the added work of the heart and lungs rather than to some more fundamental change."

METHOD OF DETERMINING THE BASAL METABOLIC RATE

As far as possible, patients with uncomplicated heart failure were chosen, to avoid those in whom the basal metabolism might be influenced one way or another by other factors. A standard Benedict machine was employed for the present series, and the calculations were computed from the amount of oxygen consumption under standard conditions. The figures of Du Bois were employed as the normal standards.

The usual precaution of absolute rest in bed for at least twelve hours preceding the test was observed. Also, the patients were given no food or water for a similar period. When possible, the patient was placed in the complete recumbent position; but in the severely dyspneic and cyanotic cases, some elevation of the head or chest had to be provided. Subsequent tests were made as often as indicated, when compatible with the patients' general condition and welfare.

In our later cases, vital capacity determinations also were made. The vital capacity was found invariably decreased in cardiac decompensation, and particularly so when the basal metabolic rate was elevated above normal. As the clinical picture of the patient improved and the basal metabolism decreased, the vital capacity generally increased. In other words, the basal metabolic rate and the vital capacity varied inversely as compensation became established, as illustrated in the accompanying chart. There were no exceptions to the decrease of the vital capacity in heart muscle failure.

RESULTS OF TESTS

Up to the present time, we have had seventeen patients, on whom a total of sixty-six basal metabolic rate determinations have been made. Of these patients, thirteen have already been discharged, and four are still in the hospital under observation. Our patients' ages varied from 20 to 63 years. Our series includes nine cases of cardiac irregularities. Further analysis of our series shows: five cases of valvular lesions; six cases of myocardial involvement, and six cases of combined valvular and myocardial involvement.

The striking finding so far has been the general elevation of the basal metabolic rate in cardiac decompensation, the elevation increasing as the clinical picture of decompensation became worse, and decreasing, and even going below normal, as the heart became compensated.

Of the total number, thirteen patients, or more than 76 per cent., showed a primary or subsequent elevation of the basal metabolic rate, while three, or 17 per cent., showed a decreased initial basal metabolism. Another patient had a decreased basal metabolic rate at the first determination, but it is to be noted that compensation had already become established at the time the reading was made.

The lowest initial increase of the basal metabolic rate in our series was 11.8 per cent. above normal, while the highest reached 112.7 per cent. above normal. The average initial basal metabolic rate increase in the thirteen cases was 39.1 per cent. above normal. It is interesting to note here that our highest readings were obtained in a man with thyrotoxicosis. Bipolar ligation of the superior thyroid was followed by even higher increase of the basal metabolic rate.

The diagnosis of the degree of heart muscle failure was made independently by one of us (W. W. H.) without any knowledge of the basal metabolic rate readings. With one exception, patients in whom the basal metabolism was elevated above normal are classified as having moderate to advanced heart muscle failure. Of those with a decreased basal metabolic rate, two are listed as having early heart muscle failure, and the other two as moderate. This would tend to indicate that a change in the basal metabolic rate in cardiac decompensation bears a direct relation to the degree or severity of the heart muscle failure.

2. Peabody, F. W.; Meyer, A. L., and Du Bois, E. F.: The Basal Metabolism of Patients with Cardiac and Renal Disease, Arch. Int. Med., 17: 980-1009 (June), 1916.
3. Peabody, F. W.; Wentworth, J. A., and Barker, B. I.: The Basal Metabolism and the Minute Volume of the Respiration of Patients with Cardiac Disease, Arch. Int. Med. 20: 468-478 (Sept.) 1917.
4. Hamilton, B. E.: Heart Failure of the Congestive Type Caused by Hyperthyroidism, J. A. M. A. 83: 405-410 (Aug. 9) 1924.
5. Dieuaide, F. R.: Observations on the Respiratory Gases in Ventricular Paroxysmal Tachycardia, Bull. Johns Hopkins Hosp. 35: 229-232 (Aug.) 1924.

It is to be further noted that those cases in which the basal metabolic rate was persistently high, the condition as noted at the time of discharge is "unimproved" or "slightly improved." On the other hand, those in whom the primary basal metabolism was below normal or in whom the subsequent readings were finally decreased to even below normal, the discharge note is invariably "improved." The one death in our series was that of a patient who showed a constant elevation above normal of his basal metabolic rate. These findings, too, tend to bear evidence that the basal metabolic rate in decompensated cardiac cases is intimately dependent on the degree of heart muscle failure.

Regarding the cause or causes of the increased basal metabolic rate in heart muscle failure, we have not evolved a definite conclusion at this stage of our investigation. Fever does not seem to be an important factor, as most of our cases had no elevation of the temperature, particularly at the time of the metabolic determinations. Acidosis would not seem to be a factor, as the carbon dioxid combining power of the venous blood leaned toward an alkalosis rather than an acidosis. In fact, after a few such determinations, the department of chemistry, which made the chemical determinations, inquired whether our patients were receiving alkalis.

An increased respiratory rate with its greater muscular activity no doubt causes some elevation of the basal metabolism. Increased cardiac muscular activity is also a possible factor. Other conditions being equal, the higher contraction rate of the musculature normally active in respiration, the larger amount of muscle tissue which becomes active during dyspnea, and the higher contraction rate of the myocardium must necessitate a greater oxygen consumption for the amount of work done by a tissue whose metabolism during activity is probably greater than that of any other. Dieuaide's observation of the increase in the basal metabolic rate during an attack of paroxysmal tachycardia may give a measure of the added oxygen consumption brought about by the factor of heightened muscular activity alone. We have been unable to confirm his findings, because our series has included no cases of uncomplicated paroxysmal tachycardia. Whether the increased activity of the heart and of the muscles of respiration is alone sufficient to account for some of the elevations found by us remains to be determined. The further relations of the basal metabolic rate to the pulse rate, rhythm, blood pressure, dyspnea, cyanosis and the type of heart involvement (valvular or myocardial) remain also to be determined.

SUMMARY AND CONCLUSIONS

1. Of seventeen cases of cardiac decompensation, thirteen, or 76 per cent., showed a primary or subsequent elevation above normal of the basal metabolic rate.

2. Three cases, or 17 per cent., showed a decreased basal metabolic rate.

3. The basal metabolic rate tends to go higher as decompensation becomes more pronounced, and to decrease and even go below normal as compensation becomes established.

4. The prognosis is better in those decompensated heart cases in which the primary or the subsequent basal metabolic determinations are decreased.

5. The vital capacity is decreased in heart muscle failure, and increases as compensation becomes established.

6. The exact causes of the increased basal metabolic rate in organic heart disease with decompensation have not yet been determined.

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Clinical Notes, Suggestions, and New Instruments

A BEDSIDE METHOD FOR DETERMINING BLOOD SUGAR*

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Insulin treatment of diabetes, more than anything else, has demonstrated the clinical value of a knowledge of blood sugar levels. The increased frequency of hypoglycemia with its attendant dangers makes information concerning the concentration of glucose in the blood essential, and second to it is the importance of the determination of the degree of hyperglycemia. The urine often fails to indicate correctly the degree of hyperglycemia, since the percentage of sugar in the urine may remain the same through a wide variation of the concentration of the glucose in the blood. Particularly in cases of diabetic coma, blood sugar determinations are of high therapeutic value. The patient with an extremely high blood sugar receives more insulin than one with a moderate hyperglycemia. The effect of the first injection of insulin can be learned by a second blood analysis made an hour later, and this is the guide for further treatment.

The clinical usefulness of blood sugar determinations depends on a method that can be employed in the home fully as much as a method designed for use in hospital laboratories. Heretofore, nearly all blood sugar tests save Epstein's[1] have been designed for laboratory use. For this reason the Folin-Wu[2] method has been modified and simplified so that any clinician can make a fairly accurate blood sugar estimation at the patient's bedside, without the need of a colorimeter. The apparatus is compact and portable, and the technic relatively simple and rapid. The chemical principles involved are unchanged, except that the comparison of the color of the "unknown" with that of the standard is done by dilutions in especially graduated Folin-Wu blood sugar tubes instead of using a colorimeter. Obviously, the same degree of accuracy cannot be claimed for the modification as for the original method, for which it is not meant to be a substitute; but the errors are not large enough to have clinical importance. The object is to make possible the examination of the patient's blood sugar when a colorimeter is not available, and without the loss of time necessary to send the blood to a laboratory.

The equipment necessary is as follows: one common 6 inch test tube graduated at 18 c.c. and at 20 c.c.; one pipet of 3 c.c. capacity graduated at 0.5 c.c. intervals; a small funnel of hard rubber or glass; two small (about 1 ounce), wide-mouthed bottles; one medicine dropper; filter paper; five small reagent bottles, and a set of three especially graduated tubes in a special rack.

The graduated blood sugar tubes are the same in size and shape as those described by Folin and Wu. All three are as nearly the same shape and color of glass as possible. For purpose of description and directions, the tubes are numbered 1, 2 and 3. Each has a mark at 4 c.c., which comes in the constricted portion. Tubes 1 and 2 are marked at intervals of 2.5 c.c., from 10 c.c. up to 40 c.c. Each graduation is marked directly in percentage of sugar in the blood. Tube 1, beginning with 0.08 per cent., runs up with intervals of 0.02 to 0.32 per cent. Tube 2, beginning with 0.32 per cent., runs up with intervals of 0.08 to 1.20 per cent. Tube 3 is not graduated except for one mark at 25 c.c. The three tubes are placed in a special rack so that Tube 3 is in the middle hole.

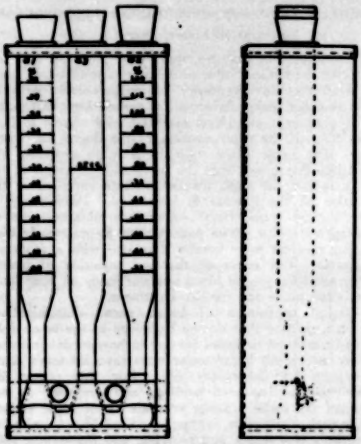
The rack is designed to supply the following features: (1) a device to hold fast the tubes so that they remain in place

* From the Clinical Laboratory of Dr. Elliott P. Joslin, New England Deaconess Hospital, Boston.

1. Epstein, A. A.: An Accurate Microchemical Method of Estimating Sugar in the Blood, J. A. M. A. 63: 1667 (Nov. 7) 1914.
2. Folin, O., and Wu, H.: J. Biol. Chem. 41: 367 (March) 1920.

when the rack is inverted; (2) a flat bottom so that the rack can be stood in a pan of boiling water or on a table; (3) material of sheet metal in order to withstand the boiling water; (4) a background of white opal glass, which is held in place for comparisons of color, and (5) a rigid protection for the tubes against breakage in handling or carrying. The general design is shown in the accompanying illustration. The dimensions are 9 by 4 by 2½ inches.

The reagents used are identical with those described by Folin and Wu, with the exception of the 10 per cent. sodium tungstate solution. In place of this solution, a solution con-



Rack and graduated tubes.

taining only 1.25 per cent. sodium tungstate is used. For convenience, directions for preparing the reagents as given by Folin and Wu are included here.

To prepare the standard glucose solution, a stock solution of 1 per cent. glucose in a saturated solution of benzoic acid is made, and 5 c.c. of the stock is diluted to 250 c.c. with a saturated benzoic acid solution.

To prepare the alkaline cupric tartrate reagent, as used in this procedure, 40 gm. of pure anhydrous sodium carbonate (or 47 gm. of monohydrated sodium carbonate, U. S. P.) is dissolved in 400 c.c. of water; 7.5 gm. of tartaric acid is added, and, after this has dissolved, 4.5 gm. of copper sulphate, U. S. P. The solution is diluted to 1 liter.

To prepare the phosphomolybdic-tungstic acid reagent, 35 gm. of molybdic anhydrid (MoO_3) and 5 gm. of sodium tungstate are dissolved in 200 c.c. of sodium hydroxid solution, 10 per cent.; 200 c.c. of water is added, and the solution is boiled for forty minutes. The solution is cooled and diluted to 350 c.c., and 125 c.c. of phosphoric acid, U. S. P., is added.

The other reagent used is a two thirds normal sulphuric acid.

PROCEDURE

1. The skin over the front of the elbow is washed with 70 per cent. alcohol. A tourniquet is placed around the upper arm, and the cubital vein is punctured with a sterile hypodermic needle that is connected with a syringe. From 4 to 5 c.c. of blood is drawn, the tourniquet is released, and the needle is withdrawn. The blood is immediately transferred to a clean, dry bottle containing about 10 mg. of powdered potassium oxalate (about one-eighth inch on the point of a penknife). The blood is mixed with the potassium oxalate immediately to prevent clotting. Unless the blood is analyzed immediately after it is drawn, one small drop of solution of formaldehyd, U. S. P., should be added to preserve the sugar. If the solution of formaldehyd is not added, glycolysis may reduce the sugar content very materially in a few hours.

2. The test tube is filled about one-half the distance to the 18 c.c. mark with the sodium tungstate solution.

3. Exactly 2 c.c. of blood is pipetted into the test tube, and the pipet is rinsed by drawing the sodium tungstate solution up and down two or three times.

4. With the medicine dropper, more of the sodium tungstate solution is added up to the 18 c.c. mark.

5. With the same dropper, two-thirds normal sulphuric acid is added up to the 20 c.c. mark; the tube is corked and shaken vigorously.

6. The contents of the test tube are poured on filter paper in the funnel and filtered into a clean, dry bottle.

7. The pipet is rinsed thoroughly with water, and then with 1 or 2 c.c. of the protein free filtrate.

8. Exactly 2 c.c. of the filtrate is measured into Tube 1, and 0.5 c.c. into Tube 2.

9. The pipet is rinsed with the standard sugar (glucose) solution, of which exactly 2 c.c. is measured into Tube 3.

10. The pipet is rinsed with water, and 1.5 c.c. of water is measured into Tube 2.

11. The cupric tartrate reagent is added with the dropper to all three tubes up to the 4 c.c. mark.

12. The rack containing the three tubes is allowed to stand in a pan of boiling water for eight minutes.

13. The tubes are then cooled by standing the rack in cold water or by holding them under a cold stream.

14. Exactly 2 c.c. of the phosphomolybdic-tungstic acid reagent is measured with the pipet into each tube.

15. After one minute, Tube 3 is filled to the 25 c.c. mark, and Tubes 1 and 2 to the first graduation, with water.

16. The tubes are firmly corked, and the rack is inverted once.

17. The rack is held close to a strong light so that the opal glass is between the tubes and the light, and the colors are compared. If Tube 2 is lighter than Tube 3, and Tube 1 is darker than the standard, the blood sugar is between 0.08 and 0.30 per cent. The "high per cent. sugar tube" is disregarded and water is added with the dropper to Tube 1, up to the next graduation. The stopper is replaced and the rack again inverted.

18. The addition of water to Tube 1 from mark to mark is repeated, the rack being inverted and comparison being made after each dilution, until the color in Tube 1 is the same depth as the color of the standard in Tube 3. If, at the first comparison, Tube 2 is darker than Tube 3, the blood contains more than 0.32 per cent. of glucose. In this case, the contents of Tube 2 are diluted, and the "low per cent. sugar tube" is disregarded.

Comparison of Results by Modified Method with Those of the Regular Folin-Wu Method

Blood Specimen	Folin-Wu	Modification	Operator
1	0.22	0.21	E. D. K.
2	0.10	0.12	
3	0.21	0.21	
4	0.30	0.30	
5	0.44	0.46	
6	0.25	0.24	
7	0.13	0.15	
8	0.08	0.08	
9	0.03	0.04	
10	0.90	0.88	
11	0.28	0.27	M. L. B.
12	0.29	0.32	
13	0.38	0.40	H. F. R.

19. When the colors are matched, the level of the liquid in the tube diluted indicates directly the percentage of glucose in the blood.

This procedure covers a range of blood sugar values from 0.08 to 1.20 per cent. If, at the first comparison, Tube 1 is lighter than Tube 3, the blood contains less than 0.08 per cent. of sugar, and hypoglycemia exists. The degree of hypoglycemia can be determined, if desired, by repeating the procedure, using 0.5 c.c. of standard sugar solution plus 1.5 c.c. of water in Tube 3 instead of the 2 c.c. of the standard solution. The same protein free filtrate may be used, and

Tube 1 is prepared exactly as before. Tube 2 may be omitted. The reading on Tube 1 is then divided by four to give the correct percentage of glucose in the blood. The wide range of blood sugar values covered by the use of the two tubes includes all the values usually found even in the most severe diabetes.

RESULTS

Comparison of the results obtained with the modification with those obtained with the Folin-Wu technic has shown that the accuracy of the method is sufficient for clinical purposes. A few of the results are given in the accompanying table. In order to eliminate the possibility of a personal element accounting for good results, the apparatus was used by several persons, and, in most cases, the first determination was well within the limit of error for clinical usefulness.

CONCLUSIONS

By means of the inexpensive and portable apparatus described and the simple technic outlined, blood sugar determinations of a fair degree of accuracy can be done at the patient's home or bedside. It is thought that the method should be useful in the physician's office and in the small hospital without a laboratory.[3]

A NEW INSTRUMENT FOR TRANSFUSION OF WHOLE BLOOD

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The apparatus here described has these essential features:

1. There is automatic infallible control of the passage of whole blood from donor to recipient. This is exercised by two valves acting solely under the force of gravity.

2. Only one small 2 c.c. syringe, which is never changed during the whole procedure, is required.

3. All the more or less complicated maneuvers common to other apparatus and methods, such as continuous washing and changing of syringes, sprinkling the syringe with ether, switching plates, opening or closing stopcocks, and clamping rubber tubings are eliminated. The surgeon can do the most satisfactory transfusion all alone. All he has to do is to insert one needle in the vein of the donor and the other in the vein of the recipient, and push back and forth the plunger of the syringe. The passage of the blood from donor to recipient is automatically controlled.

4. The whole apparatus can be sterilized in the autoclave or by boiling, and can be kept sterile. In emergency cases, transfusion may be as readily and safely accomplished as the injection of any ordinary intravenous medication by one person, no assistants, nurses, or any special preparation being needed.

5. The apparatus is practically indestructible. It is always ready for immediate use, as there is nothing that can get out of order or break (the only exception being the small glass syringe, which is easily replaced in case of breakage). It is small and compact, and can be carried in one's pocket.

6. The whole apparatus is just a continuous, completely closed, absolutely smooth small caliber channel of communication between the vein of the donor and the vein of the recipient. Thus coagulation of blood during transfusion is rendered practically impossible, and air embolism is absolutely impossible.

7. The whole apparatus is easily and most thoroughly cleaned by taking it apart and cleaning each part separately. The taking apart and putting together of the apparatus is an extremely simple matter, not requiring any special mechanical skill or tools of any kind.

THE APPARATUS

The apparatus is made up of: (1) the blood flow controller; (2) a stand holding the controller and the syringe; (3) a 2 c.c. record syringe, with a spring; (4) rubber tubings and needles.

3. Arrangements have been made with the Emil Greiner Company, 55 Fulton Street, New York, for the manufacture of the entire apparatus, including reagents.

1. *The Blood Flow Controller.*—This is the main part of the apparatus (Fig. 2). Its function is to control automatically and positively the drawing of the blood from the donor's vein and its introduction into the recipient's vein. This control is based solely on the force of gravity. The blood flow controller is made up of a body, two small metal balls, two plugs and two lock nuts. The plugs end in two metal tubes, to which the rubber tubing is attached. The illustrations show how the blood flow controller is made and how easily it can be taken apart and reassembled. When the apparatus is assembled, the two balls fall on their seats by gravity and close the channel cut through the body of the controller. When the syringe aspirates, the suction will raise up the lower ball, while at the same time it will tighten the upper ball against its seat. The raising up of the lower ball will allow the blood to fill the syringe. When the syringe is filled there is no more suction and therefore the lower ball falls again against its seat and closes the channel leading to the donor's vein. Now we push back the plunger and empty the syringe. The pressure exercised by the blood will raise up the upper ball, while at the same time it will tighten the lower ball against its seat. The raising of the upper ball will allow the passage of the blood from the syringe into the recipient's vein. When the syringe is emptied, the upper ball falls again automatically on its seat. The alternate lifting and falling of the lower and upper balls follow automatically the action of the syringe, and in this manner is obtained the positive control of the flow of the blood from the donor to the recipient. This control is so perfect and delicate that no back flow is possible, and will always be perfect, under all circumstances, as there is nothing to wear out or get out of order, no springs or hinges being used. A well calculated, smooth widening of the channel, at the points opposite the seats of the balls, prevents blocking of the channel itself by the balls when raised from their seats. The balls are standard and nonrustable. They can be found in any hardware store in case one accidentally loses them while cleaning the apparatus. (To avoid any inconvenience, a dozen balls are supplied with each apparatus.)

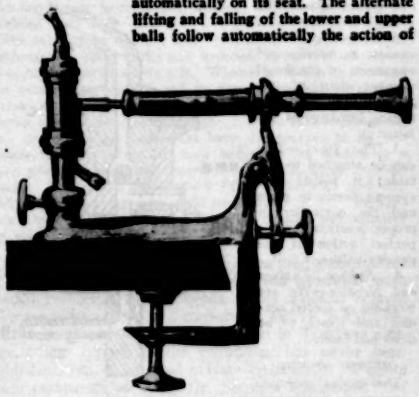

Fig. 1.—Apparatus assembled and ready for use (rubber tubings were not attached in order to keep the illustration as small a possible). The smallness of the whole apparatus can be gaged by the comparative size of the 2 c.c. syringe.

2. *The Syringe.*—One of the outstanding features of the apparatus is the use of a small, 2 c.c. record syringe instead of the 20 c.c. syringe used with other methods. The small record syringe is used for many reasons: the syringe is filled and emptied so rapidly that the blood is practically never out of its natural containers (the blood vessels of either donor or recipient) and therefore it does not undergo any appreciable changes. This is so true that the syringe is never changed. The plunger does not stick to the barrel, and experimentally

up to about 3,000 c.c. was passed from one animal to another, the same syringe being used. By not changing the syringe, one obviously avoids the usual complications due to such changes. Valuable time and personnel are saved; introduction of air is made impossible, and the entire operation proceeds smoothly. The objection raised by some colleagues, that by using a small syringe it will require a longer time to perform a transfusion than if a larger syringe was used, is groundless. The ratio of speed is regulated not by the size of the syringe but by the size of the needle. In our clinical and experimental work, we found that it takes about one minute for each 100 c.c. of blood transfused. The advantages of using a small syringe are: ease of action, no sticking of plunger to barrel, low cost of syringe, and facility of replacement, in case of breakage; finally, the small syringe does not need to be changed during the whole transfusion, because the blood does not undergo any appreciable changes in the very short time it remains out of the blood vessels. The syringe is fitted with a longer rod, allowing the addition of a spring, which renders its action easier and smoother.

Two considerations about syringes: It is advisable to remove the wire found in the groove of the plunger and fill the groove with sterile petrolatum; it makes the syringe run more smoothly. In order to avoid breakage, one should separate the plunger from the barrel before boiling. Heat causes a more rapid expansion of the metal plunger than of the glass barrel, with resulting breakage of the latter.

3. The Stand.—This can be attached to any table; it holds the syringe firmly in place and the controller in proper position for the perfect action of the gravity valves.

4. Rubber Tubings and Needles.—We are working on special needles and joints, to be described later.

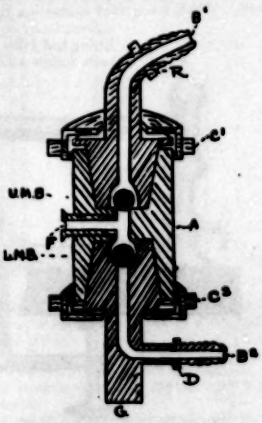

Fig. 2.—Sectional view: *A*, body of controller, with (*F*) tubing into which the syringe is inserted; *B*¹, *B*², plugs; *R*, upper plug ending in tubing to which the rubber tubing carrying the needle for the recipient is to be attached; *D*, lower plug ending in *D* in tubing to which the rubber tubing carrying the needle for the donor is to be attached, and in *G* in a solid rod to be inserted on the stand; *C*¹, *C*², lock nuts, the function of which is to bring in close contact the channel cut in the body and in the plugs; *U. M. B.*, *L. M. B.*, metal balls regulating the action of the controller. By unscrewing the lock nuts, the controller is easily taken apart.

METHOD OF USE

The modus operandi is extremely simple and easy. The whole apparatus is filled with saline solution; one needle is introduced into the donor's vein and the other into the recipient's vein, and the action of the syringe is started. In emergency cases, one may insert the lower needle in the donor's vein; aspirate the blood; expel all the air (this is accomplished by filling and emptying the syringe about twice); and, while the blood flows, pierce the vein of the recipient with the other needle, and then keep on the action of the syringe.

To transfuse whole blood, with the apparatus described, the surgeon simply has to allow the spring to push back the plunger and so fill the syringe, and then push the plunger forward, thus injecting the blood into the recipient's vein.

The apparatus is called "the little factotum" because it is equally efficient in performing transfusion of whole blood, blood perfusion, infiltration, local and regional anesthesia and hypodermoclysis, intravenous injection, paracentesis and thoracentesis.

58 West Fifty-Eighth Street.

Special Article

MEDICAL EDUCATION AND MEDICAL SERVICE

V. REVISION OF CURRICULUM AND OF TEACHING METHODS

WILLIAM ALLEN PUSEY, M.D.
CHICAGO

(Concluded from page 515)

How could the academic work of medicine be done in three years? By having to face the necessity of doing it in three years. If there were some czar who could demand that we cover adequately the college course in medicine in three years—and such a czar may develop in necessity—I doubt not it would be done; and I am not sure it would not be done in a sounder way than we are doing it now. It would require intelligence in method, thought in separating essentials from unessentials, and thoroughness. It would require that sound methods of teaching be pursued and sound practices of study be required of students, so that it would not be necessary to cover the same didactic ground more than once, as is largely done now in the senior year.

The details of medicine are so numerous that no one man can know all of them even in a limited field. The large facts on which a comprehension of medicine or of any other subject depends, and on which a full study of it should be founded, are in comparison few. Take as an illustration the subject of syphilis, only one disease, but one which touches every department of medicine. Many volumes can be written on its details, but the essential facts, from which a clear comprehension can be had of the disease and its management, can be put in thirty or forty pages. Osler has thought it worth while to undertake to do it in twenty. That is the best sort of exposition of syphilis that can be given to students. It would greatly simplify the problem of syphilis in the world today, if such elementary essential knowledge of it were current instead of the vast amount of vague, inaccurate and uncorrelated detailed knowledge that is common. And to take an illustration from one of our whole departments of medicine: I do not know how much space or time would be necessary to perform a similar service for the teaching of anatomy, but I do know that anatomy contains an almost infinite amount of detail—a lifetime of knowledge in itself—and that much more of it is taught than students can keep or than is necessary to give them the essential facts of the subject which are the basis of practice and on which any further detailed knowledge must be built. And I am firmly of the opinion that the amount of detailed instruction in anatomy to undergraduates could be greatly reduced to the benefit of the student and to the credit of our teaching methods.

The two illustrations above, I believe, are fairly representative of conditions in undergraduate medical teaching in general, and indicate how it could be condensed with good results.

The fact is, medical teachers, like others, cut their garments according to their cloth. It is difficult to appraise one's own field at its proper relative value. It is not only easier for the teacher to give his course without necessity for close condensation, but it is

human for him to justify its importance by as complete an exposition of it as he can get time for.

There is, of course, a minimum below which the amount of instruction cannot satisfactorily go, but there is hardly any maximum beyond which it cannot be elaborated; and we have been tending in medicine toward the maximum. One of the most wholesome things that could happen to medical education would be for it to face the necessity of eliminating a large amount of uncoordinated and minor detail, and of limiting itself to principles and such an amount of detail as the student's mind could be expected to assimilate and utilize as the basis of working knowledge.

Technical education in the proper sense is not a matter of cramming a man's head full of facts. It is rather one of training his mind and hand and at the same time giving him the store of essential facts which will form the basis of his mental activities in the future in his particular occupation. To be competent it is not necessary, as has been stated by one of us, that "a man should know . . . the history, symptoms and causes of all diseases before he should be allowed to practice on any disease by any method whatsoever."

It is necessary to have a ground work of essential knowledge, to be able to use this knowledge and to know how to get the knowledge that he has not. As Dr. William H. Welch has said: "The very utmost to be expected is to give the student a fair knowledge of the principles and of the fundamental subjects of medicine and the power to use the instruments and methods of his profession; to give him the right attitude toward his patients and the fellow members of his profession; and, above all, to put him in a position to carry on the education which has only begun in the medical school. . . . He should be put in a position to continue his own education."

I shall not undertake to consider defects in our medical education, such as the overstandardization of courses, the excessive amount of time we demand that the student spend in the passive work of learning and the little time we give him for independent study and thinking, for I am not primarily writing on medical education as such; but there are many of these defects which bring home the necessity for drastic revision of the medical curriculum and teaching methods and the practicability of shortening the course.

Medicine has not yet freed itself from its old wasteful traditions of teaching. It is not surprising that this is true when one considers how medicine has tried to evolve itself—always a difficult and more or less unsuccessful undertaking—out of its old state where the physician-teacher, not without vanity and self-importance, was supreme. The lecture system, which had its beginning in the days when books were so rare that students could not have them and which, in my opinion, has no other justification, while happily dying out, is still responsible in method for the inordinate amount of time that is thought to be necessary for the teaching of medicine.

Much emphasis is placed on the fact that medical education now is in the hands of the universities. But actually medical education is in the hands of the universities very largely on the terms that we have imposed. The universities are, in fact, told how much the student must get of this, how much of that, how many hours of instruction he must have in each year, down to rather fine details. The universities are not given the medical students and told to turn them out fit physicians in their own way and in their own time. The terms of their education are specified for them in the requirements to practice medicine of the various states; these in turn have been determined chiefly by the Council on Medical Education and Hospitals in the standards of requirements which, through its propaganda and control of publicity, have been established for the country at large. And we, with the other extramural organizations active in medical education, are for the most part amateurs in education. Some, if not most, of those who have been the most influential spokesmen in determining the present policy in medical education have little or no experience in medicine and equally little in teaching, even of medicine.

There is not lacking high authoritative opinion in criticism of the condition of medical education today. For example, Dr. Henry S. Pritchett, formerly president of the Massachusetts Institute of Technology and, since its foundation, president of the Carnegie Foundation for the Advancement of Teaching, has the following things to say in his report of 1921:

> Perhaps no defect in the medical school makes a sharper impression on the lay visitor, familiar with the quality of teaching in our more serious colleges, than the lack of good teaching. . . .
>
> The medical curriculum today represents the conception of teaching of a half century ago improved by certain laboratory procedures superimposed on it. What is needed is to abandon this conception entirely and to plan a medical curriculum afresh in the light of present day knowledge of medical science and of medical education. . . . Whatever agency may undertake this task must have the courage to do two things—first, to reduce the load laid upon the student to a point where he may have time to think and to digest in some measure the studies with which he is concerned; and secondly, to scrap the present rigid curriculum. . . . Perhaps only a new medical school will have the courage and initiative for such a step.

In 1920, Columbia University appointed a committee of the medical faculty to study medical education with special reference to the needs of its medical school. This committee had, as a consultant, W. H. Kilpatrick, professor of philosophy of education in Teachers College. The report of the committee has never been published, but it has had private circulation. I quote from comments on it by Dr. Stephen Rushmore [44] of Boston in his able discussion of Edsall's paper, "The Product of Medical Education":

> What did they [members of this committee] say about the teaching at the College of Physicians and Surgeons? This Class A school may be regarded as typical of the best medical schools in the country. What was said at that time, 1920, probably applies now. . . . They said that fundamental laws of learning were disregarded; very little attention was paid to the fundamental principles. Perhaps because of what the committee said, in the next year, President Butler of Columbia stated in his annual report to the trustees that medical education was fifty years behind education in other branches. . . . Indeed, the report and that statement by President Butler are a challenge to present day medical education. Either it ought to justify its procedures or it ought to change them.

President Butler, in his report in 1921, discussed medical education at length:

> Medical teaching is, however, in need of very severe critical examination on the part of those who have a sound knowledge of educational processes and educational experience.
>
> The true aim of the medical school should be to give instructions in fundamental principles and methods, to bring

44. Boston M. & S. J. 191:292 (Aug. 14) 1924.

the student in contact with realities, to train him in the habits of observation and inferences . . . and to give him knowledge of where to look for the additional or specialized knowledge that he may need. . . . Moreover, it must never be forgotten that the purpose of the medical school is to train physicians and not scientific investigators. It would be a sorry day for the public health and for the public satisfaction if the physician of large practical experience, wide human sympathy and keen insight into human nature were to yield his place to the expert with the microscope and the test tube.

Neither President Pritchett nor Dr. Rushmore nor President Butler was talking about a reduction in the length of the medical course, but their strictures on it indicate how much time could be saved were it revamped in the radical way that President Pritchett boldly suggests.

In the light of such authoritative criticisms on our educational methods, are we proceeding cautiously, patiently, as befits responsibility, with tolerance for suggestions that are not in accord with our views?

In a recent editorial,[45] the medical curriculum that we have established was compared with "a straight and modern highway" which "needs the finishing touches to render it smooth and serviceable." I cannot readily think of any figure that would more fully indicate perfection of plan or substantial completion—or a more complaisant satisfaction with the state of medical education as we have arranged it. That is not a safe attitude or one of receptivity that promises intelligent progress.

Criticisms such as the foregoing indicate the possibilities that exist for shortening the medical course, and that the discussion of its shortening cannot be regarded as closed. Nevertheless, discussion of it is refused as far as possible and, when it is unavoidable, the cry is raised of lowering medical standards, of backward steps and that sort of thing. Of course, that is no answer; it is refusal to discuss the question. The essence of the question is not whether we are stepping forward or backward; it is whether we are going in the right direction.

This attitude of reluctance toward discussion and criticism can be effective only so far as such a show of hostility will deter men from entering into the undesired discussion of the subject. There is, indeed, a very unfortunate sentiment, not confined to irreconcilable radicals, that this situation must go on until the conditions of medical service break down to the point at which correction will be necessary, because those who are in control of medical education are now able to dictate and will tolerate no change. For example, one of the thoughtful and able students of medical education has written to me: "I believe very definitely that your suggestion in regard to medical education presents the only procedure that would alleviate the situation. This it is impossible to carry out now, however, because no school of good reputation dares institute such a procedure."

In another way, discussion of the subject is restrained because most men are reluctant to be placed in an attitude that may be construed as opposing progress, particularly when this attitude may be interpreted as not appreciating culture and its ideals. We are influenced more than we are likely to appreciate by our desires to go with the elect. Without necessarily being a prig, one hesitates to write himself down as not being among the intelligentsia.

45. Current Criticisms of Medical Education, editorial, J. A. M. A. 83:273 (July 26) 1924.

Nevertheless, widespread discussion is occurring and undoubtedly will continue, because there is widespread and deep-rooted opinion that some modifications of the exactions of medical education are necessary. These views are common, I believe, throughout the profession, except among young graduates, young medical teachers and those older medical teachers who are responsible for our present policy in medical education. Views of this sort are held by many men whose experience and position give their opinions great weight; by such men as George Blumer of New Haven, Conn.; James S. Stone of Boston; J. M. T. Finney and Gordon Wilson of Baltimore; Hugh T. Patrick and Norval H. Pierce of Chicago; Angus McLean of Detroit; Theodore Diller of Pittsburgh; John M. Gile of Dartmouth, N. H., and William J. Mayo of Rochester, Minn.

I can take time to refer only briefly to many incidental arguments that are offered in opposition to any modifications of our present educational policy, such as: The schools are full now; the great foundations are back of our present policy; the universities are committed to it. In truth, I am not particularly concerned with these incidental facts; they are amenable to change. I am chiefly concerned with essential considerations, for they will in time determine the success or failure of our policy.

The schools are full now, but they would be equally full—perhaps a few more might be full—and be serving the country and the profession better, were most of them training young men to do the world's everyday work. Their change to such a course would not be difficult. There might be a few more schools like Bowdoin which would train men from their districts to go back into these districts. It would be an easy matter to change the school situation, did we see the desirability for it or were we compelled to accept the necessity for the change.

The great foundations are back of our present policy, and the universities are carrying on under it; but their only interest is in a proper solution of the problem, and there is nothing in their attitude to indicate that in their opinion the present condition is satisfactory or final.

Finally, it is by no means beyond debate that a plan such as I suggest, with a universal minimum requirement of four years, with provision for extended training for select careers, would not be better for the advancement of medicine, for medical culture as a whole, and for the prestige of the medical profession. The advancement of the world's knowledge of medicine, or of anything else, depends on the intensive training and the special careers of a few men, not on the attempt to train intensively every man in the field. Medicine's first duty is to train soundly a large number of men to do the ordinary work. It is from this large group that there emerge the great investigators and leaders who advance the science and art of medicine. The select few do not by any means always come from the group of those who have had the most desired basic training. Pioneers, discoverers, investigators, leaders are born. One of the most profitable things we can do is to provide them, after we find them, with opportunities; but they make themselves. They cannot be indiscriminately produced by hothouse methods. Apparently, the most important thing in their production is association with great minds, whether they are in big institutions or little. Under such a plan as I suggest, the chances of finding these choice men—and

the chances of finding the best men for the medical profession in general—would be greatly enlarged, because the range of our selection would be greatly widened. We would then select our students less on the basis of material prosperity and more on the basis of personal fitness.

A review of the subject shows, I believe, that a considerable modification in the material and time exactions of medical education is necessary in order that medicine shall meet its responsibilities as a social agent, and that these modifications are compatible with sound medical education.

As I have said before, I am not insistent on the details of the course that I propose. I would be glad to see adopted a better one, that would come within the time limits that are practicable and that would meet the necessities of the situation. What I would insist on again is that we cannot successfully meet the problem indirectly and artificially. It must be met directly and in accordance with sound economic principles; no other sort of solution will be adequate. And in its solution we shall be compelled to consider not only ideals but actualities. For what Flexner [46] said fourteen years ago is as true now:

> The question is, then, not merely to define the ideal training of the physician; it is just as much, at this particular juncture, to strike the solution that, economic and social factors being what they are, will distribute as widely as possible the best type of physician so distributable.

NOTE.—Since this was written, the General Education Board has published "The Distribution of Physicians in the United States," by Lewis Mayers and Leonard V. Harrison. Through the courtesy of Mr. Abraham Flexner, I was given the opportunity of examining this report in galley proof in February or March last, when I was writing my House of Delegates address. A rereading of it confirms the opinion that I formed at that time that it presents no new or valuable facts or views on the subject.

It starts out by setting up a straw man and then proceeds to demolish him:

> Large and populous rural areas ready, willing and able to support a physician, but unable to induce a physician to locate in them . . . and compelled to rely for medical attention on the services of practitioners 20 miles distant; this is a picture which has been drawn with increasing frequency in the past few years. . . .
>
> The causes assigned for this condition have been various; but certain factors related to the changes in medical education which have come about in the last ten or fifteen years have been charged with a large measure of responsibility—in some discussion, indeed, with sole responsibility (first sentences of introduction).

It brings out the same arguments about social and economic conditions, deterioration of the country, trend toward the cities, effect of automobiles, lowering of prestige of the country physician, and the things of that sort which have been discussed in this paper. It is a restatement of the argument of the Council on Medical Education and Hospitals on the economic and social deficiencies and unattractiveness of the rural districts to our present graduates. It is, indeed, an essay on the well known social and economic factors which influence the distribution of physicians—and other people—rather than a systematic or thorough exposition of the facts of their distribution, or an analysis or statement of conclusions based on these facts. The crucial matter of it all, the way the expensiveness of medical education comes into play in the action of these social and economic factors in the distribution of our present graduates, is not considered.

It does not take into account as a basis of this report any evidence on the subject except such as it has gotten together, but it says that "a systematic examination of the question has now been made." There is no evidence that this examination was more systematic than that made by the Committee of the Conference of Health Authorities through state medical officers, or that made by me through the secretaries of state medical societies; it doubtless was larger and more laborious. This examination, it nowhere appears, has been a first-hand examination of the situation on the ground anywhere in the rural districts, but consists of a study of a large correspondence directed to selected areas over the country and of the distribution and changes of rural physicians as shown in the directories of the American Medical Association. It does not collate or summarize or give in detail the information obtained in this correspondence, but presumably this information is used in formulating the opinions that the report expresses. The facts that it brings out concerning the distribution of physicians confirm those to which attention has been called by me. Thus, its study of statistics shows a declining number of physicians in rural districts:

> During the decade 1906 to 1916, the proportion of physicians to population for the country as a whole remained nearly stationary, declining only to a negligible extent. Since 1916 the decline has been substantial (p. 53).
>
> The absolute reduction, since 1906, in the number of physicians in places of less than 1,000 inhabitants has been about 6,000—from 33,000 to 27,000, or about 18 per cent. Approximately two thirds of this reduction, it is estimated, has been registered since 1916 (p. 55).
>
> From 1916 to 1920 the number of deaths in and removals from places of less than 1,000 inhabitants has approximated 5,500, and the number of 1916-1920 graduates locating in these places has been perhaps 1,600, of whom 1,425 were there in 1923. These graduates form only 11.4 per cent. of the total number of graduates of this five year period, while of the physicians graduating before 1916 no less than 20.8 per cent. are located in these places.

For the purpose of their study, the authors classify as rural communities places of 1,000 or under, apparently not considering that towns of 2,500, which the United States Census classes as rural, have the difficulties in rural medical service.

The report sees no particular advantage in the cottage or town hospital as a solution of the rural medical problem, but *it is strong for the subsidizing of physicians by rural communities. This is the solution which it strongly favors and the only solution which it offers.* Although as a result of its study it can offer nothing except medical socialism in this form, it confidently and easily concludes:

"Whatever may be thought, therefore, of the necessity for taking measures to meet the problem of rural medical service, it seems clear that the situation does not call for any present action in the field of medical education in the direction of a reduction in requirements or lowering of standards" (p. 152), just as Mr. Flexner, reasoning from the same standpoint of desire, offered the opinion, in 1910, "The improvement of medical education cannot, therefore, be resisted on the ground that it will destroy schools and restrict output" (p. 16).

46. Flexner, Abraham: Medical Education in the United States and Canada, 1910, p. 13.

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SATURDAY, FEBRUARY 21, 1925

OYSTERS AND TYPHOID FEVER

A preliminary report of the U. S. Public Health Service on its investigation of recent outbreaks of typhoid fever in Chicago, New York and Washington shows that "the main factor in the spread of the infection causing the recent excessive prevalence of typhoid fever" in these cities and several others "was beyond reasonable doubt shell oysters distributed by a producing company operating in the vicinity of West Sayville, New York." Observations of the situations in Chicago and New York were made by officers of the United States Public Health Service from the first appearance of evidence of an excessive prevalence of typhoid fever in those cities in December. Intensive studies were begun in New York and vicinity, January 5, in Chicago and vicinity and in the District of Columbia, January 12, and in the several other cities on or about January 23. These studies have included, first, a searching inquiry, largely direct interviews with the persons affected, into food and beverages to which they had been exposed within the thirty days immediately preceding their illness. It covered ninety-eight cases in Chicago and vicinity, forty-two cases in Washington, and 263 cases in New York. The inquiry included also a thorough investigation of every factor, including water, milk, milk products, vegetables, fruits, shellfish and local sanitary conditions, that might possibly have been operative in the spread of the infection.

Within the period from November 15 to January 15, the excess of cases of typhoid fever reported in New York was about 650; in Chicago, about 100, and in Washington, about fifty. The number of cases investigated individually in each of these cities was sufficient, it is stated by public health officials, to give a clear epidemiologic picture of the whole situation. The chronology of the outbreaks suggested a common factor in the distribution of the infection in all three cities. The epidemiologic histories of the individual cases obtained by the respective city health departments of all the cases checked substantially with those obtained in the intensive and usually direct inquiry among individual cases.

Following are the definite conclusions submitted at this time by the United States Public Health Service:

1. The preponderance of evidence is that the general supply of no large distributor of oysters was uniformly infected, but that oysters infected in one or more beds or part or parts of one or more beds or at one or more floats, and constituting but a small proportion of the total, were introduced into and distributed with a large supply of oysters of good sanitary quality.

2. The period of causation of the excessive prevalence was between Oct. 25 and Dec. 20, 1924, and there is no reason to believe that oysters distributed since December 20 by the company referred to, or any other large distributor, have been any more of a factor in the spread of typhoid infection than such oysters were in any corresponding period within the last several years.

3. The evidence is that, owing to temperature changes in some bed or beds or part or parts thereof; to discontinuance of receipts from the infected source or sources; to sanitary measures that have been carried out by the oyster producers within the vicinity of their floats and on their dredging boats, or to a combination of such factors of safety, oysters on the market since Dec. 20, 1924, have been free from any considerable degree of typhoid infection, and that those now being sold or offered for sale are, from a sanitary standpoint, as safe to eat as raw food as is usual at this season of the year.

4. There is no evidence that shellfish other than oysters, or that scale fish contributed to the spread of the infection causing the recent excessive prevalence of typhoid fever, and there is no reasonable cause for any popular apprehension that shellfish or scale fish which are heated throughout to a temperature of 100 C. before being eaten are not now as safe and salutary for human consumption as usual.

5. In the interests both of our public health and of our food industries, provision should be made at the earliest possible date (certainly before March 4, 1925) for more nearly adequate official sanitary supervision, regulation and protection of industries engaged in the production, preparation for sale, and distribution in interstate traffic of shellfish, vegetables, fruits, milk, milk products, and other foods eaten usually or frequently without being cooked.

6. This important investigation has been made under the direction of Dr. L. L. Lumsden, assisted by many other trained officers and sanitary engineers of the Public Health Service. In view of the fact that reports of the outbreaks of typhoid fever throughout the country among the classes who are accustomed to eat oysters not only resulted in a practical cessation of the oyster industry but seriously affected the traffic in other fish products, this preliminary report is issued before the completion of the complete report.

Naturally, the publication of this report has aroused great interest among the purveyors of oysters. Dealers claim that the "typhoid scare" resulted in a loss of thirty million dollars to the industry. Already plans are under way to provide regular inspection, to discontinue production from suspected areas, to provide patrol boats with bacteriologic laboratories, and to educate all concerned in the industry as to fundamental sanitary considerations. The United States Public Health Service is to be congratulated on the prompt investigation and on the plans for future control, which should prevent a repetition of the serious conditions that have just been overcome.

ACIDOSIS AND THE PRODUCTION OF EDEMA

Despite the enormous amount of attention that the problem of the genesis of edema has received at the hands of scientific investigators, no unanimity of opinion has yet been reached. In the earlier development of the subject, when the pioneer investigations of Ludwig and Cohnheim were being undertaken, mechanical factors were invoked more frequently as possibilities in explanation of the excessive accumulation of lymph in the intercellular spaces or serous cavities of the body. In recent years it seems to have become clear that mere increment of volume in the blood vessels is not sufficient to provoke edema formation. Saline solutions may be introduced into the circulation in liberal amounts that lead to extreme dilution without giving rise to outspoken edema. Hence pathologists have come to the conclusion that hydremia and hydremic plethora may almost be disregarded in this connection, except so far as they may bring about "altered metabolism in the tissues, injury to vessel walls, oversaturation of the blood colloids, and decreased osmotic pressure within the vessels."[1]

The development of physical chemistry and the consequent introduction of new points of view into the biologic sciences have been responsible for an hypothesis attributing to the increased swelling capacity of protein colloids in the presence of acid the genesis of edematous conditions of the tissues that are encountered in certain pathologic states. M. H. Fischer, in particular, has championed such an explanation. On this basis the primary factor is the abnormal production or accumulation of acid products in the tissues, the increased hydration capacity of the tissue colloids being a consequence. This hypothesis, which seemed to offer a comparatively simple and elegant explanation of various phenomena, has been ardently debated. One of the most recent critics of the view that the local development of acids increases the affinity of the tissue proteins for water assails its simplicity. In the first place, he[2] contends, the buffer action of the tissues and tissue fluids must undoubtedly prevent the development of a sufficiently high acidity to account for the accumulations of fluid that occur in edema. The acidity required to influence in so decided a manner the swelling of proteins is far greater than the acidity that could possibly prevail within living tissues or the tissue fluids derived from them; and, as a matter of fact, considerable edema may prevail in tissues displaying no perceptible deviation from the normal neutral or excessively faintly alkaline reaction of all living tissues and tissue fluids. Then, again, the accumulations of fluid that occur in and characterize edema are more frequently interstitial than intercellular. The fluid is found between the cells and not within the cells themselves, where the proteins are present in highest concentration.

An analogous conclusion is demanded by the latest experiments of Hirschfelder[3] of the University of Minnesota in the development of inflammatory edemas in subconjunctival tissue by mustard oil introduced into the conjunctival sac. If the eyelid is excised after the application of mustard oil, but before the edema has begun to develop, the lid does not swell and no edema develops if the lid is immersed in 0.9 per cent. sodium chlorid solution, Ringer-Locke solution or serum, showing that the development of edema is not due to imbibition of fluid by the tissues. It was also possible to demonstrate that there is no appreciable accumulation of acid in the edema fluid. Its reaction may be the same as that of the blood of the individual involved. The hypothesis of a local acidosis thus becomes untenable as the explanation. There is better evidence, however, that a part is played by filtration through the walls of the injured capillaries; for the edema is roughly proportional to the difference between pressure in the capillaries and that in the surrounding interstitial tissue. The edema is decreased by local vasoconstrictors, by ligation of a carotid artery, and by epinephrin intravenously; and it is increased by local vasodilatation, unless the general blood pressure has fallen considerably. Perhaps it will still be wise at this time to insist that there may be a variety of causes concerned in the genesis of edema.

THE ACTION OF INSULIN

Even a cursory study of the experimental facts that have been secured with regard to the action of insulin on carbohydrate metabolism leaves one with the conviction that the processes involved are complex. Indeed, there may be a number of factors variable in respect to attendant circumstances, so that the explanation of the foremost symptom, the disappearance of glucose from the blood, may not always be the same. Perhaps the possibility would be better expressed by postulating the existence of variable contributory factors that facilitate the disappearance of the sugar. Certain facts are, however, already fairly clear. It was early assumed, in view of the rapidity with which the lowering of the blood sugar content ensues after injection of insulin, that some process occurring in the blood itself must be responsible for the phenomenon. The preponderance of evidence at present is against the idea that insulin increases glycolysis in the blood. Yet even if the insulin hypoglycemia is not due to this, the possibility or even the probability remains unanswered that insulin

1. The quotation is from Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1920.
2. Robertson, T. B.: Principles of Biochemistry, Philadelphia, Lea & Febiger, 1924.
3. Hirschfelder, A. D.: Studies upon the Vascular and Capillary Phenomena and Supposed Axon Reflexes Concerned in the Development of Edema in Mustard Oil Conjunctivitis, Together with the Effects of Vasodilator Drugs, Local Anesthetics and Vital Stains, Am. J. Physiol. 70: 507 (Nov.) 1924.

somehow affects the glucose molecule so that it becomes more susceptible to normal metabolic transformation. This implies conversion of the sugar into what has been termed a "reactive" form.

There has been considerable speculation as to whether special organs are concerned in some "cooperative" way in producing the familiar insulin effects. Attention has naturally been centered on the liver, where an accelerated conversion of blood sugar into hepatic glycogen might take place. Macleod[1] believes in the inevitable conclusion that insulin after entering the blood must pass into the tissues, and set up in them some process that leads to a reduction in the amount of free glucose, thereby creating, as it were, a vacuum for this sugar, with the result that glucose is removed from the blood. Experiments by Burn and Dale[2] in the National Institute for Medical Research, London, show clearly that the initial stage in the metabolic sequence initiated by insulin, the disappearance of glucose from circulation, can occur quite normally in the absence of all tissues with an important metabolism, except the heart and the skeletal muscles. This does not exclude the possibility that other organs, such as the liver, may be equally concerned in this process, as seen in the whole animal; but it does not allow us to regard any of them as playing a special and indispensable part in it. For example, it makes it impossible to suppose that an essential step in the disappearance of glucose is its conversion by the liver, under the influence of insulin, into a reactive form. Ordinary glucose, infused straight into the heart-lung-muscle preparation, disappears under insulin like the normal blood sugar. It has been conjectured that insulin may merely stop the new formation of sugar from fat, while the sugar already present as such continues to be used at the normal rate. New experiments with artificially perfused hearts show that the removal from circulation of artificially infused glucose may be accelerated by insulin to a rate many times the normal; the fall of blood sugar is certainly due, therefore, to acceleration of removal, and not to restriction of supply.

According to a view recently detailed by Macleod, the outstanding facts are that insulin causes the sugar of the blood (and tissues) to diminish in both the normal and the diabetic animal, partly because of an increase in the relative amount of carbohydrate that is metabolized and partly because some of the glucose is converted into nonsaccharine material, which is mainly glycogen in diabetes, but is some other substance in the normal animal. In the latter case, insulin actually causes the glycogen stores to become depleted because of the demand for glucose which it sets up, partly to form this unknown substance and partly to be oxidized. When the nature of the product into which the sugar may be converted is discovered, a large step in advance will have been taken. Meanwhile it is important to realize that in cases of pancreatic deficiency the influence of the muscles on the blood sugar is changed by insulin in a manner which shows no qualitative or quantitative difference from that observed with the muscles of normal animals. The British investigators[2] believe that there is no significant store of insulin in the muscle of the normal animal, and that the distinction between normal and diabetic ceases with removal from the conditions of normal interchange with the viscera. The discovery of insulin has not merely altered our considerations of diabetes; it has been responsible for a new outlook on the entire group of problems normally presented by carbohydrate metabolism in the body.

1. Macleod, J. J. R.: Insulin, Physiol. Rev. 4:21 (Jan.) 1924.
2. Burn, J. H., and Dale, H. H.: On the Location and Nature of the Action of Insulin, J. Physiol. 59:164 (Oct. 9) 1924.

Current Comment

OVERCROWDING AND MORTALITY

That overcrowding may affect human welfare and health adversely, and thereby lead to personal disasters of various sorts, is not a new conception. Specific instances in substantiation of it could doubtless readily be cited from the history of crowded war camps, overfilled jails, or teeming tenements. Long ago the English statistician, William Farr, to whom we are indebted for pioneer investigations of the incidence and significance of invalidity and illness in various types of communities, expressed the conclusion that there is an unmistakable relationship between density of population and mortality. World conditions are rapidly changing, so that such possibilities have become a subject for serious consideration in various places. There has been a great growth of urban populations, and the consequences of this movement everywhere on the morbidity and death rate cannot yet be properly forecast. In his recent farewell address at Washington, Ambassador Jusserand of France may have had dire possibilities in mind when he made a plea for a new Vergil to teach—as in the Augustan days—the beauty and happiness of country life. Speaking of the problems that various nations have in common, the French diplomat referred to the increasing tendency of country people to leave the country and live in cities, so that, to quote his words, "cities are injured by overcrowding, and the country is injured by depopulation." The United States presents sufficiently wide ranges of density of population in its various urban and rural demographic units, and the governmental agencies have already collected sufficient statistics to permit some analysis of the relationship, if any exists, between the density of population and mortality. It is generally admitted that while for a period of years the population of this country has been growing in density, the total death rate has been decreasing. An extensive study by Leblanc[1] of the Johns Hopkins University indicates

1. Leblanc, T. J.: Density of Population and Mortality in the United States, Am. J. Hyg. 4:501 (Sept.) 1924.

that in the United States registration area a definite relationship between population density and mortality is not detectable. At any rate, from a national standpoint, congestion of population cannot yet be made a defensible basis for "the call of the great open spaces."

THE METABOLISM IN PREGNANCY

During part, at least, of the period of pregnancy, there is an altered metabolism. New tissues are formed, and certain comparable functions, such as that of lactation, are stimulated to an unusual degree. Whether the transformation of energy is altered in some specific way has not been equally well determined, although there has been no dearth of study of the problem. Carpenter and Murlin [1] showed long ago that the energy liberation of the mother and child together a few days after parturition just about equals that of the mother before confinement. In other words, the energy production of mother and child experiences no deflection at birth. If the heat production of the fetus at term is practically uninfluenced by birth, one may conclude that the fetus, as well as the baby at birth, should be regarded as being independent of the mother in respect to metabolism; and its heat production should be calculable from its own surface area, which is proportional to its own active protoplasmic mass before and after delivery. The recent studies of Sandiford and Wheeler [2] at the Mayo Foundation agree with earlier reports in showing beyond question that the total energy production of a pregnant woman increases slightly, beginning at the middle of gestation, and finally reaching a maximum of approximately 20 per cent. above her basal value before pregnancy. These investigators do not believe, however, that there is definite evidence that the rate of heat production of a unit mass of tissue of the normal human organism is materially changed during pregnancy, but rather that such increases as occur represent the heat production of the newly formed protoplasmic tissue, composed largely of the fetus, and to a less extent of maternal tissue. In a case carefully studied by Sandiford and Wheeler, the increase in total heat production manifested itself during the latter part of pregnancy, beginning with the eighth month and gradually increasing to the tenth lunar month, when the total calories for each hour were 25 per cent. greater than before conception. Nevertheless, the energy production of a unit mass of the mother's protoplasmic tissue remains unchanged throughout the course of pregnancy. It is noteworthy that there was no increase in heat production during lactation. In fact, there was a slight decrease, probably because of the less active life. As the mother gradually resumed her usual activities, the metabolism became almost identical with that before pregnancy. There was no demonstrable loss of energy in transforming the mother's food into milk. This is in harmony with the presumption that the rearrangement of nutrients in the production of milk depends on hydrolytic changes and synthesis that scarcely involve thermal reactions.

1. Carpenter, T. M., and Murlin, J. R.: The Energy Metabolism of Mother and Child Just Before and Just After Birth, Arch. Int. Med. 7:184 (Feb.) 1911.
2. Sandiford, I., and Wheeler, T.: The Basal Metabolism Before, During and After Pregnancy, J. Biol. Chem. 62:329 (Dec.) 1924.

WHEN BABIES CRY

The normal physiologic life of young infants consists in eating, sleeping and growing. This summary does not include any provision for a type of activity that plays a significant part throughout all the later periods of human existence. Muscular function, as it enters into both work and play, determines in no small measure the demands that are made on the energy reserves of the adult body. The metabolism of work is of a different order from that of rest; and, correspondingly, the nutrient needs are enhanced above the basal requirement by the extent to which the muscles are called into play. In the adult this may often mean a doubling of the energy exchange as the result of a vigorous day's work. When careful measurements of the infant's metabolism first began to be made, it was soon observed that, despite the absence of any noteworthy voluntary muscular activities, a disturbing factor is introduced through the crying of the young. Perhaps it will seem far fetched to speak of crying as hard work; nevertheless, the Danish physiologist Hasselbalch long ago observed that, when a baby cried, its metabolism was double that found in a period when it was asleep. And now Murlin [1] and his associates at the University of Rochester have observed that just as much energy is required to support healthy crying as to support the baby at the basal level. Expressed otherwise, it was found that crying 1 per cent. of the time raises the metabolism 1 per cent. If a child cried all the time, his metabolism would thus be doubled. Remarking on this unattained performance and assuming an efficiency of 20 per cent. (better than the best steam railway locomotive), Murlin remarks that the child would do an amount of work equivalent to lifting in one hour 570 kg. one meter high, or lifting his own weight (3.5 kg.) to the top of the Washington Monument. This is an astonishing amount of energy, but it would be accomplished with only 10 c.c. of his mother's milk. We have made much, on occasions, of the augmented metabolism of the young. These findings indicate anew that the basal energy exchange in earliest life approximates 2 calories per kilogram hourly, or double that of the adult computed on the same unitary basis. Why, then, shall a baby waste still more by crying? The healthful, properly nourished infant cries but little.

1. Murlin, J. R.; Conklin, R. E., and Marsh, M. E.: Energy Metabolism of Normal New-Born Babies, Am. J. Dis. Child. 29:1 (Jan.) 1925.

Debt of Botany to Medicine.—Almost all the early botanists were medical men, and the chief stimulus to the study of botany was the search for useful drugs. This is true even of classical times, the days of Theophrastus and of Dioscorides. The early scientists were, with few exceptions, such as Archimedes, observers rather than experimenters, and the mere differentiation and naming of genera and species, a branch of science which dates back to the Garden of Eden, and of which that great naturalist Linneus was a brilliant exponent, afforded an immense field of work.—Garrod, A. E.: *Lancet* 2:844 (Oct. 25) 1924.

Association News

THE ATLANTIC CITY SESSION

Local Committee of Arrangements

The Local Committee of Arrangements, its Advisory Council and the chairmen of its subcommittees are: Local Committee of Arrangements: Clarence L. Andrews, 1801 Pacific Avenue, Atlantic City, chairman; Henry T. Harvey, secretary, and Edwin H. Harvey, treasurer. Advisory Council: Philip Marvel, Sr.; W. Blair Stewart; Walt P. Conaway, and William Edgar Darnall. Chairmen of subcommittees: Finance, W. Blair Stewart; Entertainment, Walt P. Conaway; Hotels, David B. Allman; Halls and Meeting Places, William J. Carrington; Scientific Exhibits, Samuel Stern; Registration, Ward D. Scanlan; Section Work, Philip Marvel, Jr.; Diagnostic Clinics, Richard Bew; Commercial Exhibit, I. E. Leonard; Reception Committee, Coulter Charlton; First Aid, John T. Beckwith; Printing, Joseph H. Marcus; Section Entertainment, Samuel Barbash; Alumni and Fraternal Entertainment, Worth Clark; Programs, Edward Uzzell; Information, Byron Davis; Telegraph and Telephone, Joseph Poland; Badges, Harold S. Davidson; Women Physicians, Clara K. Bartlett, and Women's Committee of Entertainment, Mrs. Worth Clark.

Scientific Exhibit: Section on Dermatology and Syphilology

The Committee on Exhibit of the Section on Dermatology and Syphilology calls attention to the fact that those who desire to participate should notify Dr. F. C. Weidman, University of Pennsylvania, Philadelphia, before the first of March. The aim of the Exhibit is to give a comprehensive and systematic demonstration of the whole subject of syphilis, beginning with etiology and ending with therapeutics, showing every phase of the disease, including nervous, congenital and visceral syphilis. There will also be models, apparatus, specimens and experimental animals. The Exhibit will be divided in the following classifications: (1) Etiology; (2) Course and Symptomatology; (3) Differential Diagnosis; (4) Hygiene; (5) Therapeutics. It will occupy a prominent space in the hall for the Scientific Exhibits.

MINUTES OF THE ANNUAL MEETING OF THE BOARD OF TRUSTEES, HELD AT HEADQUARTERS, CHICAGO, FEB. 6, 1925

The Board of Trustees held its annual meeting, February 6. An informal meeting was called, February 5, at which time the members of the Board visited the various bureaus and departments at Association headquarters. The meeting was presided over by the chairman, Dr. Walter T. Williamson, and the following members were present: Drs. Williamson, McDavitt, Dowling, Brown, Richardson, Upham, Heckel, President Pusey and President-Elect Haggard; also Dr. Olin West, Secretary and General Manager; Dr. Morris Fishbein, Editor; and, for part of the time, Dr. Austin A. Hayden, Treasurer; and Dr. M. L. Harris, Chairman of the Judicial Council.

Drs. A. R. Mitchell and Dr. J. H. Walsh were unavoidably absent from the meeting.

REVIEW OF PRESENT STATUS OF POSTGRADUATE INSTRUCTION

A committee was appointed to confer with the executive secretary of the Council on Medical Education and Hospitals, with respect to postgraduate and short courses of instruction in special fields of medicine. The committee recommended that the Council on Medical Education and Hospitals be requested to present in its next report to the House of Delegates a review of the present status of postgraduate schools, and its recommendation was adopted by the Board.

QUARTERLY CUMULATIVE INDEX

Plans for further improvement of the *Quarterly Cumulative Index* were considered and approved. Attention was called to the fact that the *Index* is coming more and more into favorable notice as a book of reference for scientific workers and libraries, and that with a view to making it more adequately fill this sphere, it is proposed to increase materially the number of periodicals indexed, particularly by the addition of important journals published in other countries.

AMERICAN MEDICAL DIRECTORY

The General Manager's report showed that the plans for the publication of the Ninth Edition of the American Medical Directory were progressing favorably, and that a gratifying number of orders already has been received. It is hoped that the Directory will be off the press in April or very early in May.

HYGEIA

Hygeia received most careful consideration by the Board, and plans for extending its circulation, for strengthening its editorial management, and for further improving the magazine were thoroughly discussed. Many comments on the periodical were submitted to the Board. The report submitted by the circulation department showed that there has been a gradual increase in the number of subscribers, although the circulation of the magazine has not nearly reached the figures which it is hoped to realize. A gratifying feature of the report submitted to the Board was the indication that newspapers and lay magazines throughout the country are constantly reproducing material from *Hygeia*, and that the magazine is being used very widely by teachers in class-room work.

N. S. DAVIS MEMORIAL FUND

The disposition of the N. S. Davis Fund was considered, and the President of the Association was requested to confer with members of the family of Dr. Davis and to have plans prepared for beautifying and otherwise improving the N. S. Davis Memorial Library at Association headquarters, so that it may be made a fitting memorial to this outstanding figure in the development of the American Medical Association.

REPORT OF FINANCE COMMITTEE

The finance committee presented its report, making specific recommendations with respect to appropriations for the various councils, bureaus and departments, as well as for the committees on scientific and therapeutic research. The report of the committee was adopted.

ARCHIVES OF SURGERY

It was decided that the *Archives of Surgery*, which is now published bimonthly, shall be made a monthly periodical beginning with the next volume.

LUCIEN HOWE GIFT

The acceptance of a gift of $1,500 from Dr. Lucien Howe of Buffalo, to be held in trust by the American Medical Association for the Section on Ophthalmology, was finally completed, in accordance with advice received from the counsel of the Association.

AMERICAN CONFERENCE ON HOSPITAL SERVICE

The President of the Association was authorized to appoint two delegates to the meeting of the American Conference on Hospital Service, to be held, March 11.

HOTEL RATES IN ATLANTIC CITY

The matter of hotel rates for members and Fellows of the Association during the Seventy-Sixth Annual Session, to be held at Atlantic City, was considered. The General Manager reported that the Hotel Men's Association at Atlantic City had guaranteed that the rates during the annual session would be standard rates, and that no more favorable ones would be provided for any other organization. A list of the hotels and rates was printed in THE JOURNAL, January 24.

ELECTIONS

Election of members to the Council on Pharmacy and Chemistry, to the editorial boards of the special journals, and to standing committees was entered into, with the following results:

Council on Pharmacy and Chemistry.—Drs. G. W. McCoy, F. G. Novy and George H. Simmons were elected to succeed

themselves; DR. MORRIS FISHBEIN, Editor of THE JOURNAL, was elected to serve as the seventeenth member.

Editors of Special Journals.—DRS. GEORGE DOCK of Pasadena, W. A. PUSEY of Chicago, DEAN LEWIS of Chicago, E. W. TAYLOR of Boston and OSCAR M. SCHLOSS of New York were reelected on the editorial boards of the *Archives of Internal Medicine, Archives of Dermatology and Syphilology, Archives of Surgery, Archives of Neurology and Psychiatry* and the *American Journal of Diseases of Children*, respectively.

Committee on Protection of Medical Research.—DR. SIMON FLEXNER of New York was reelected.

Committee on Scientific Research.—DR. MARTIN H. FISCHER of Cincinnati was elected to succeed Dr. G. N. Stewart.

CHANGE IN DATE OF ANNUAL MEETING OF BOARD OF TRUSTEES

It was decided to recommend to the House of Delegates that the By-Laws be amended to provide for the regular annual meeting of the Board of Trustees on the third Friday, rather than on the first Friday, in February, so that more time might be allowed for the preparation and presentation of financial statements and of official reports.

INVITATION FROM BRITISH MEDICAL ASSOCIATION

A letter from Dr. Alfred Cox, medical secretary of the British Medical Association, conveyed an invitation to the American Medical Association to send six delegates to the annual meeting of the British Medical Association, to be held at Bath, July 21-24. The Board of Trustees instructed the President of the Association to make grateful acknowledgment of the receipt of this invitation, and to appoint the indicated number of delegates.

The President also was instructed to extend an invitation to the British Medical Association to send official delegates to the annual session of the American Medical Association, to be held in Atlantic City next May.

COMMISSION TO STUDY FOOT AND MOUTH DISEASE

The approval of the Board of Trustees of a resolution seeking the appointment, by Congress, of a research commission to study foot and mouth disease at its source was asked in a letter from Dr. R. R. Ferguson, secretary of the American Association of Medical Milk Commissions. These communications will be referred to the House of Delegates, with the recommendation from the Board of Trustees that the resolution be favorably considered.

GIFT FROM DR. R. O. RAYMOND

A donation of $1,140 was received from Dr. R. O. Raymond of Flagstaff, Ariz., and was accepted for the Association by the Board of Trustees. The gift was not accompanied with any suggestions as to how it should be used, except that Dr. Raymond expressed the opinion that it might be used to advantage in scientific research. The Board of Trustees made no immediate disposition of the fund but will seek to find a suitable use for this generous gift.

RULES GOVERNING THE BOARD OF TRUSTEES

The report of the committee on standing rules of the Board of Trustees, presenting a revision of the rules, was adopted. The rule with respect to the selection of the Executive Committee of the Board of Trustees will necessitate an amendment to the By-Laws to provide for the election, rather than the appointment, of this committee. This matter will be referred to the House of Delegates.

COMMITTEE ON SCIENTIFIC EXHIBIT

The Committee on Scientific Exhibit presented a comprehensive report which indicated that the exhibits at Atlantic City will be quite up to the high standards heretofore established.

SEVENTY-SIXTH ANNUAL SESSION OF THE ASSOCIATION

Arrangements for the Seventy-Sixth Annual Session were discussed, and it was shown that, through the local committee, with Dr. C. L. Andrews as chairman, satisfactory progress is being made.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Smallpox at Birmingham.—Following the first death in the present outbreak of smallpox at Birmingham, Dr. Judson D. Dowling, health officer, announced that a severe type of this disease had appeared in the city, where there were, February 7, 258 persons suffering from the disease, of whom 234 were quarantined in their homes and twenty-four at the pest house. During the week ending February 6, 112 new cases were reported. Vaccination stations have been established in the city laboratory and other places.

ARIZONA

Smallpox in Yuma County.—It is reported that seventy-seven cases of smallpox occurred in Yuma County from Dec. 10, 1924, to February 4. Commenting on this epidemic, the El Paso *Herald* says that the city of El Paso used to have smallpox epidemics every winter but now only an occasional case.

CALIFORNIA

Another "University President" Arrested.—S. I. Kimbro, who formerly operated the "University of Natural Healing" in Los Angeles, was arrested, January 31, charged with violation of the medical practice act. In default of bail, Kimbro was placed in the city jail, and the date of trial set at March 3. For the last two months, Kimbro has been located at the New Bronx Hotel, Los Angeles, where, it is reported, he charged $3 per treatment for "vibro-nature autonormalizing treatments."

University of California Graduate Courses.—The summer courses of graduate instruction being arranged by the University of California Medical School will be given in San Francisco, June 15-July 11, and will be open to doctors of medicine graduated from recognized institutions. The laboratory and clinical facilities of the medical school and hospitals affiliated will be used for this work, and the teachers will be drawn mainly from the faculty of the university. The courses offered will include general medicine and surgery, laboratory diagnosis, gastro-intestinal diseases, metabolic diseases, dermatology, neuropsychiatry, operative technic, pathology, roentgen ray and other specialties. Dr. Eugene S. Kilgore, San Francisco, has been appointed director of the graduate courses. The enrolment will be limited to numbers that can be adequately taken care of.

DISTRICT OF COLUMBIA

American Congress on Internal Medicine.—At a recent meeting of the Medical Society of the District of Columbia, Surg.-Gen. Merritte W. Ireland, U. S. Army, spoke with reference to the meeting in that city of the American Congress on Internal Medicine, March 9-14. Among other things, General Ireland spoke of the Army Medical Museum and the advantages of visiting this building. General Ireland said that space is available in the museum for exhibits which may be sent for the meeting of the American Congress of Internal Medicine, and offered to arrange the exhibits and furnish microscopes if needed. The museum has an exhibition hall equipped to display lantern slides, moving pictures and opaque projections. The facilities of these institutions were placed at the disposal of the committee. An extensive program has been arranged for this, the ninth congress, at various hospitals, universities and museums in Washington, a copy of which can be obtained from the secretary-general, Dr. Frank Smithies, 1002 North Dearborn Street, Chicago.

Control of Venereal Disease.—The committee on District of Columbia of the Senate has favorably reported the bill to prevent venereal diseases in the District of Columbia. The bill passed the House of Representatives, May, 1924, at which time public hearings were held and many persons testified before the committee on the urgent need for legislation of this character for the District of Columbia, where no law whatever is in force on the subject of venereal disease con-

trol or registration of such diseases. The bill requires that the administrative officer of every hospital, dispensary and penal institution shall report all cases of venereal disease in any inmate of such institution; that the judge of the juvenile court or any court of criminal jurisdiction shall report to the district health officer any person under trial, who may be suspected of having a venereal disease; that every physician shall report to the health officer any case of syphilis, gonorrhea or chancroid which he has been employed to treat; and authority is given the district health officer, in case he has reasonable grounds to believe that a person is suffering from a venereal disease in a form likely to be a source of infection to others, and such person refuses to submit to a medical examination, by court action to compel the accused person to submit to medical examination. There is a further provision which forbids a person, suffering from a venereal disease in a form likely to be a source of infection, to work as barber, masseur, cook, baker or producer or handler of food or drink. There is a penalty of a fine of $100 or imprisonment of sixty days for violation of the law.

ILLINOIS

Society News.—Dr. Thomas S. McDavitt, St. Paul, Minn., addressed the Adams County Medical Society, Quincy, February 8, on "The American Medical Association," of which for years he has been a trustee. A reception and dinner were given in honor of Dr. McDavitt preceding the meeting.

Resolution of Labor Union.—The Belleville Trades and Labor Assembly passed a resolution, February 3, which was, in part, as follows:

> WHEREAS, all well regulated cities protect the health of the people, and especially of the children, by the enactment of ordinances on sanitation, and protect citizens from impure and contaminated food products, be it
> *Resolved*, That in the interest of public health the Belleville Trades and Labor Assembly, in meeting assembled, appeals to the city council to enact an ordinance providing that all milk used for human consumption in the city must be pasteurized before being offered for sale, and providing a penalty so severe that no person or firm will attempt its violation, and thus prevent a possible typhoid or other epidemic among the children.

Birth and Death Rates.—The excess of births over deaths in this state last year was 39,972, a net increase in population sufficient to people a city the size of Springfield, or the seven counties of Brown, Calhoun, Edwards, Hardin, Henderson, Kendall and Putnam, the state health director says. The favorable difference between the birth and death rate per thousand population has exceeded that of last year (8.8) only twice in the last decade. For the last four years the average death rate of Illinois was 11.4 and for the preceding four years 13.8—a difference in rate that means a saving of almost 45,000 lives in four years. For the fourth consecutive year Chicago has reported a lower death rate than the remainder of the state, reversing the condition which prevailed during all previous years.

Chicago

Dispensary Appoints Superintendent.—Dr. George W. Duvall, Owensboro, Ky., and for the last four years director of the Daviess (Ky.) County Health Department, has been appointed superintendent of the Central Free Dispensary at Rush Medical College.

Anonymous Gift to Northwestern.—The president of Northwestern University announced, February 12, that a Chicago physician, who requested that his name be withheld, has given $150,000 to Northwestern University Medical School for instruction to students in clinical medicine, and to meet the needs of the poor and unfortunate of the city.

Meeting of Woman's Board.—The annual meeting of the Woman's Board of the Presbyterian Hospital was held, January 5. A general review of the achievements of the board was presented. The hospital work was reviewed by Mr. Frank Shaw, president of the board, and the work in dispensary by Mrs. Gertrude H. Britton, then director of the Central Free Dispensary. Dr. Ernest E. Irons reviewed the medical service and directed attention particularly to the accomplishments of the hospital with respect to the experiments of Drs. George F. and Gladys R. H. Dick in scarlet fever and that of Dr. Arno B. Luckhardt in the use of ethylene as an anesthetic. This is the oldest woman's board in the city, and has at present a membership of 264.

Society News.—The Chicago Ophthalmological Society and the Chicago Laryngological and Otological Society will hold a joint meeting at the Great Northern Hotel, March 2-3. There will be a scientific meeting following the dinner at 6:30 p. m., Monday, addressed by Dr. Louise Pearce, Rockefeller Institute, New York. Clinics will be held in various hospitals on both days. Members of either society who desire to present clinical material should notify either Dr. Robert H. Buck or Dr. Austin A. Hayden, secretaries of the societies, respectively.——Dr. James B. Herrick, president of the Chicago Association for the Prevention and Relief of Heart Disease, addressed that association, February 19, at the City Club on "Work of the Association," and Dr. Charles G. Farnum on "The Cardiac in Industry."

LOUISIANA

Smallpox.—A report of the collaborating epidemiologist for Louisiana of the U. S. Public Health Service, for the week ending February 7, shows that fifty-five cases of smallpox were reported from La Salle, ten from La Fayette, four from Plaquemine, three from Ouachita, two each from Acadia, Caddo and Caldwell, and one each from East Baton Rouge, Iberia, Orleans, Tangipahoa and Calcasieu, a total of eighty-three, or nine more than were reported the previous week.

State Board Publications.—A supplement to the state board of health's *Quarterly Bulletin* gives the results of the Louisiana Milk Survey made by the American Child Health Association, the state board and local health officers of most cities. There are tabulated data concerning each dairy, including the number of cows, amount of milk produced, who retails it, whether it is iced in delivery, the amount of butter fat and solids and the results of bacteriologic examination. The survey covered 524 dairies and the examination of 1,122 samples of milk. Many of these specimens were positive to the test for *Bacillus coli*, a much smaller number were watered and a considerable number of the bottles gave short measure. In the year ending Sept. 30, 1924, 36,507 head of dairy cattle were tested for tuberculosis, 857 being reactors. Examining these animals post mortem, lesions were found in all of them except forty-six. The *Quarterly Bulletin*, December, 1924, contains the results of a survey of sanitary conditions among the colored people of the state. The colored race is declining in relative numerical importance as a racial group. Willcox, who recently published an examination into the distribution and increase of negroes in this country, said that between the years 1800 and 1860 the negroes increased 343 per cent., while from 1860 to 1920 the increase was only 136 per cent. These were the years of freedom which brought with them dangers and responsibilities incident to that condition. In the survey presented in this *Bulletin*, thirty-four municipalities were studied and several rural communities. In 20,249 houses in which lived 75,541 negroes, 98 per cent. of the houses did not possess a bathroom; 55 per cent. were not screened, and 50.6 per cent. were without garbage cans. The *Bulletin* says that the interest of the white and colored races are so intimately related that any adverse influence in one will react on the other and that the races should cooperate to bring about living conditions which would be advantageous to both.——The Almanac of the Louisiana State Board of Health, which has attracted attention for several years, contains health poems, health jokes, health facts and health pictures.

MARYLAND

Editorial Change in Bulletin of Johns Hopkins Hospital.—The control of the *Bulletin of the Johns Hopkins Hospital* passed in January to the medical school, and this publication in the future will be in charge of an editorial board chosen among the members of the faculty. Correspondence relating to all business details should be addressed to the publishers, Williams and Wilkins, Baltimore. The *Bulletin* will continue to appear monthly.

Oyster Survey.—Following a conference between the conservation commissioner and health officials, January 13, it was announced that a state survey of oyster bearing waters will begin, April 1, and probably continue until late next fall. Boats will be equipped as laboratories, and laboratory stations will be established at Solomon Island and other points. The work, which will start in the Chester River, will cover an area of oyster beds of about 225,000 acres, according to the commissioner's estimate.

The Wilmer Institute.—Mr. J. P. Morgan, New York, has given $100,000 to the fund required to establish the Wilmer Eye Institute at Johns Hopkins University, Baltimore, leaving, it was reported, February 8, the amount yet to be raised at $500,000. The date on which the total sum, $3,000,000, needed to assure the establishment of the institute must

be raised, was extended to February 15 (THE JOURNAL, November 29, p. 1774). The president of Johns Hopkins announced, February 15, that the entire amount had been subscribed. Among other large gifts to this fund were $50,000 each from Frank A. Munsey, Julius Rosenwald and Felix Warburg.

MASSACHUSETTS

Personal.—Dr. Watson S. Rankin, state health officer, North Carolina, delivered the Cutter lecture on preventive medicine at the Harvard Medical School, Boston, February 12. Dr. Rankin's subject was "Standards for Public Health Department Practices."

MICHIGAN

Mrs. Patrovich Has a Cancer "Cure."—Following the death from cancer of a Mr. Lewis of Macon Township, Mrs. Stephanie Patrovich, Monroe, was arrested, January 29, on a charge of practicing medicine without a license. Mrs. Patrovich treated this patient, it is reported, by placing on his abdomen $27 in currency, which he paid her in advance as half payment, and by uttering incantations. She then placed a hollow carrot, specially prepared, in the chimney where it was to remain for nine weeks and directed that the patient be partly buried three times a week in the Lewis barnyard. Mrs. Patrovich claims to have been born in Germany, the "seventh daughter under the veil."

MINNESOTA

Antivaccination Propaganda.—Form letters were received by certain public school teachers in St. Paul, February 5, threatening damage actions if they subjected certain children to medical inspection or to vaccination, or if they excluded these children from school. The city health officer said, it is reported, that these letters resembled those used by the Medical Liberty League in antivaccination propaganda.

Bill Concerning Malpractice Suits.—The Minnesota State Medical Association instructed its legislative committee, at the last annual meeting, to attempt to obtain the passage of a bill to reduce the statute of limitations affecting malpractice suits from six years to two years. In accordance with these instructions, a bill has been submitted to the present legislature. The number of malpractice suits against physicians and the amount sued for in recent years in Minnesota has increased. While most of these cases have no just foundation and do not "get very far," according to *Minnesota Medicine*, the expense of defending the small percentage of suits handled by the Minnesota State Medical Association has increased about $1,000 a year for the last three years. In nine states, the statute of limitations is only one year, while in New York, Massachusetts, Pennsylvania, Illinois, Iowa, Wisconsin and North Dakota it is two years. Minnesota is one of only five states of the union in which the six year statute applies.

Deaths from Smallpox.—The executive secretary, state board of health, Dr. Albert J. Chesley, Minneapolis, reported, February 8, that the number of deaths from smallpox in the state from Jan. 26, 1924, to Feb. 1, 1925, was almost double the number that occurred in the twenty year period, 1903 to 1923. Of the 307 deaths in 1924, fifteen were in Duluth, fifteen in St. Paul, 221 in Minneapolis and fifty-six elsewhere in the state. There were ninety-nine deaths and 346 cases reported in January, 1925, Minneapolis reporting 207 cases with eighty-one deaths; St. Paul, eighteen cases with seven deaths; Duluth, two cases with no deaths, and elsewhere in the state, 119 cases with eleven deaths. In spite of this condition antivaccinationists in some cities have alleged that no epidemic of smallpox exists and have brought action in the courts to prevent enforcement of orders which would exclude unvaccinated teachers, employees and pupils from the public schools.

MISSOURI

Smallpox at Palmyra.—The board of health of Palmyra, February 6, ordered all public meetings, schools, churches and theaters closed on account of an epidemic of smallpox. About twenty-five students in the schools were ill and the disease was spreading to the country districts.

State Board Issues Fifteen More Citations.—The secretary of the state board of health has made public the names of fifteen additional physicians cited to appear before the board to show cause why their licenses should not be revoked. The list, according to the St. Louis *Star*, includes:

Roland O. Bagby, Kansas City; Clara W. McGrew, St. Louis; Charles L. Hyatt, Desloge, Mo.; Edward W. Hamill, St. Louis; Loren A. Glaze, St. Louis; Joseph A. Grosskreutz, St. Louis; William B. Dallas, Jefferson City, Mo.; Archibald M. Eddins, St. Louis; C. B. Gurwitz, St. Louis; Commodore Edward Bennett, St. Louis; Oscar R. Ballard, St. Louis; Victor H. Bergmann, Chicago; John Buschmann, St. Louis; Hugo L. Rauber, St. Louis; Clarence J. Barnett, St. Louis.

With the exception of Dr. Bullard, these physicians will be charged, says Harry T. Brundidge, with making false and fraudulent statements in obtaining licenses to practice medicine. Bagby will be cited on his preliminary education; Bullard will be charged with improper conduct. In addition to the charge that Dr. Grosskreutz did not attend the St. Louis College of Physicians and Surgeons for four years, which he is alleged to have claimed he did, the board will charge that he purchased his certificate of preliminary education from Dr. Robert Adcox. William P. Sachs will testify that he prepared and sold this certificate to Adcox for $10, and that he never examined Grosskreutz. The charges to be made against some of the physicians who have been cited are based largely on records in the licensure department of the state board of health. These records show, according to the news story, that Dr. Richard Graeser, St. Louis, did not make an affidavit in the space provided in the application as to where he obtained his medical education, and that this part of the application was not filled out. Across the face of this section of the affidavit are the initials "O K R.S.V." Dr. Rudolph S. Vitt, coroner of St. Louis, and formerly a member of the state board, told the *Star* that he approved this application "after seeing Dr. Graeser perform an operation at the Baptist Sanatorium." The state board records in the case of Spurgeon H. Barnett, St. Louis, show that in 1918 he presented to the Arkansas Board of Medical Examiners a badly burnt diploma of the University of Nashville on which Barnett's name was written where another name apparently had been erased. Barnett failed to get a license then, but in 1920 he obtained a diploma from the Kansas City College of Medicine and Surgery and was licensed by the Arkansas Eclectic Board. In 1921 Barnett presented a diploma from the St. Louis College of Physicians and Surgeons, dated 1917, to the Missouri board and was licensed. The list of graduates from this college, forwarded to the American Medical Association by Dr. Waldo Briggs, dean and owner of the school, did not include Barnett's name. The University of Tennessee, which took over the University of Nashville, has written to state medical boards that Barnett never attended the latter institution. Francisco Santos de Lamadrid will be asked to explain whence came the certificate of preliminary education which he attached to his application and which was supposed to have been signed by P. J. McKinley, former superintendent of schools of St. Charles County. This certificate states that McKinley examined Lamadrid in Spanish, and that he made a grade of 90. Brundidge says that McKinley does not know a word of Spanish or any other foreign language. All told, eleven of the sixty physicians cited will be charged with having purchased premedical credentials from Adcox, who conducted the "clearing house" of the diploma ring. Eight of these certificates were signed by William P. Sachs, former examiner of the department of education and three purport to have been signed by P. J. McKinley, who claims they are counterfeit. Sachs will testify that he did not examine any of the persons who presented the credentials, and that he prepared the certificates and sold them to Adcox for $10 each. Those who presented the Sachs' certificates were:

Anna Golstein, St. Louis; James P. Vickery, St. Louis; Walter L. Kelley, Pearl, Ill.; Adolph M. Krail, St. Louis; Sylvan E. H. Rhodes, St. Louis; Salvatore A. Scimeca, Kansas City; James B. Weed, St. Louis, and Joseph A. Grosskreutz, St. Louis.

Those who presented the McKinley certificates were:

Ralph A. Voight, Kansas City; Francisco Santos de Lamadrid, Havana, and Otto C. Hauser, St. Louis.

NEW YORK

Dr. Young Resigns.—The resignation of Dr. Charles H. Young, for two years head of the Hospital of the Good Shepherd, Syracuse, has been accepted by the executive committee of Syracuse University, of which the hospital is a part. Dr. Young will return to the Maine General Hospital, Portland.

Bills Introduced.—A bill has been introduced in the state senate which would require private institutions for the treatment of narcotic drug addiction to be licensed.——Another bill would amend the insanity law so that no one can hold the position of medical examiner in lunacy unless he shall have had at least two years' actual experience in the care and

treatment of the insane in an institution for the insane. The legislative bureau of the state medical society says that if this bill is passed, it will sharply limit the examination in lunacy to those who are specialists, but that it is to be surmised that the protection of the public will be the greater conserved.——Another bill in the senate provides that an injured employee may select his attending physician. The legislative bureau of the state society comments that this is the bill which many members of the medical profession have wanted introduced and which the legislative committee in years past has been directed to work for.

New York City

New York Academy Building.—The building committee of the New York Academy of Medicine has announced that the building plans have been approved by the council of the academy and by the trustees of the Carnegie Corporation in accordance with the terms of their donation. The contractors for the new building have been selected by the council.

A Raise in Fees.—The Long Island City Medical Society announces through its secretary that most of the leading physicians of Long Island City and the Astoria section of Queens have decided on an increase in fees. After March 1, the minimum fee for a house call between 6 and 10 o'clock at night will be $4 instead of $3, and the minimum fee for maternity service will be $50 instead of $35. Day and office calls will remain as at present, $3 and $2, respectively.

Professional Building Opened.—A group of New York physicians and surgeons have formed an organization known as the Professional Offices, Incorporated, of which Dr. Freeman F. Ward is president. The purpose of the corporation is to have constructed and to own professional office buildings, which physicians can manage according to their own ideas. The first building which the corporation has had erected, at 121 East Sixtieth Street, was formally opened, January 23.

Large Gift to Presbyterian Hospital.—Mrs. Stephen V. Harkness has given $500,000 to the Presbyterian Hospital in its campaign for $4,500,000. This gift, in conjunction with $1,000,000 given by her son, Edward Harkness, three years ago, will be used for a private patient pavilion in memory of her husband, Stephen Vanderburg Harkness. The mother and son also gave the 22 acre site for the new medical center.

Chandler Medal in Chemistry.—At a meeting of educators and chemists at Havmeyer Hall, Columbia University, February 12, the Chandler medal for distinguished achievement in science was presented to Dr. Edward Calvin Kendall, 89 years old, of the University of Minnesota, head of the chemical section of the Mayo Foundation for Medical Research. As Chandler lecturer for 1924, Dr. Kendall delivered an address on "The Influence of the Thyroid Gland on Oxidation in the Animal Organism."

Personal.—William M. Clark, professor of chemistry, Hygienic Laboratory, Washington, D. C., addressed the scientific staff of the Rockefeller Institute for Medical Research, January 23, on "Oxidation-Reduction Indicators."——Dr. Jacob M. Gershberg, who has been abroad for fourteen years, has returned to New York.——Dr. Louis P. Berne has been appointed consulting plastic surgeon to the Rockaway Beach Hospital.——Dr. William Darrach, dean Columbia University College of Physicians and Surgeons, has been elected chairman of the medical council to the visiting nurse service of the Henry Street Settlement. Among other members of the council are Drs. Linsly R. Williams, Haven Emerson, Charles H. Smith, Ira S. Wile and Antonio Stella. Three county medical societies have also appointed representatives, as this service operates in Manhattan, the Bronx and Richmond.——Dr. Jonas Rein Nilson celebrated his eightieth birthday, February 7, by beginning his autobiography. He still practices his profession to some extent.—— Edmund V. Cowdry, Ph.D., of the Rockefeller Institute for Medical Research, who has been working in Sir Arnold Theiler's laboratory near Pretoria, South Africa, expects to arrive in New York early in March.—— Dr. Joshua H. Leiner has been appointed associate visiting neurologist to the Montefiore Hospital, from the laboratory division of which hospital Dr. Henry L. Jaffe has resigned to become director of laboratories in the Hospital for Joint Diseases.

NORTH CAROLINA

Smallpox in Wake County.—The appearance of twenty-two cases of smallpox in Wake County practically within sight of the office of the state board of health has brought about strict quarantine regulations. Persons having smallpox cannot leave their premises without permission from the health officer and persons exposed to smallpox, who have not had the disease nor been vaccinated within five years, will be quarantined for eighteen days, unless they have been vaccinated within five days of exposure.

Society News.—Dr. Stewart R. Roberts, Atlanta, Ga., president, Southern Medical Association, addressed the Buncombe County Medical Society, Asheville, February 2, on "The Size and Position of the Heart in Health and Disease." This society will shortly hold an open session for the general public to participate in a memorial meeting in memory of the late Dr. Marshall H. Fletcher, who was formerly president of this society and of the state medical society and first chief of staff of the Mission Hospital, Asheville.

Bill to Prohibit Teaching of Evolution.—Much interest has been manifest at the state capitol, as well as in educational circles over the state, during the last two weeks over a pending legislative bill which would prohibit the teaching of evolution in any school, college or other institution of learning receiving support from the public funds. Lengthy hearings have been held before the committees. The president of the state university and other educators have taken strong ground against the measure, and it is confidently expected the bill will be defeated.

Legislative Matters.—The proposal of the "naturopaths" in North Carolina for a state examination and licensure board (THE JOURNAL, February 14, p. 524) met defeat at the hands of the senate committee, which unanimously reported unfavorably.——A bill to repeal the law which prohibits a white nurse from caring for negro patients has been reported favorably by the senate committee.——The Wade bill now before the legislature, which provides for the elimination of nonfireproof hospitals in the state three years hence, is expected to become a law.

OHIO

Smallpox in Butler County.—According to the Ohio State Health Department, there were fifty-three cases of smallpox in Butler County in January, twenty-six of them being in the city of Hamilton. There was a total of 591 cases in the state in January.

Six New Cancer Clinics.—The Columbus health department has arranged with various hospitals to open free cancer clinics in an attempt to lower the increasing death rate from that disease. The new clinics will be at Mount Carmel Hospital on Tuesday and Friday, Radium Hospital, Wednesday and Friday, St. Clair Hospital, Tuesday, and the St. Francis Hospital daily except Saturday. At the time of this report, the schedule for Mercy and White Cross hospitals was being arranged. Each clinic will be under the supervision of a director who is a member of the hospital staff.

Personal.—Dr. Harley J. Powell, city health commissioner, Bowling Green, has been elected president of the Northwestern Ohio Health Commissioners' Association and Dr. John J. Sutter, Lima, secretary.——Dr. William H. Carey, Bellefontaine, has been reelected health commissioner of Logan County.——Dr. Porter J. Crawford, North Olmstead, has been appointed health commissioner of Miami County and the City of Troy.——Dr. Charles A. Hartley has been appointed county physician for Miami County.——Dr. Thomas T. Church, Salem, has been reelected health commissioner of Salem and Columbiana County.——Robert G. Paterson, executive secretary, Ohio Public Health Association, addressed the Pennsylvania Tuberculosis Society, Pittsburgh, January 20, and attended the midwinter meeting of the state tuberculosis secretaries, January 22, at St. Louis.

OREGON

Dr. Carlson to Lecture.—The Noble Wiley Jones Lectures will be given in Portland, March 23-26, by Dr. Anton J. Carlson, professor of physiology, University of Chicago. The subjects will be (1) "Gastric Secretion in Health and Disease"; (2) "The Problem of the Endocrines" (two lectures); (3) "Motor Disturbances of the Alimentary Canal" and (4) "The Problem of the Liver." A general invitation is extended to physicians to attend.

PENNSYLVANIA

Gift to Hospital.—The Nason Hospital, Roaring Springs, has received from Mr. D. M. Bare, a gift of a $70,000 endowment or trust fund.

Pneumonia at Pittsburgh.—There were 351 cases of lobar pneumonia in Pittsburgh during January, an increase of 239 cases over the number reported in January a year ago.

Health Association Formed.—The state department of health announced, February 7, the formation of the Pennsylvania Public Health Association. The membership will include four classes: those engaged in public health work; associate members, those interested in public health work; honorary members, those who have rendered service to public health work, and board of health or corporate health organizations. Dr. Charles H. Miner, Harrisburg, was elected president; Dr. Wilmer Krusen, Philadelphia, and Dr. Carey J. Vaux, Pittsburgh, vice presidents, and Dr. William C. Miller, Harrisburg, secretary-treasurer. The first public health state conference will be held at Mont Alto in June.

Philadelphia

Hospital News.—Mr. George W. Meister, for five years superintendent of St. Luke's Homeopathic Hospital, has resigned and accepted the appointment of superintendent of the Samaritan Hospital.

Dr. Work Honored.—Dr. Hubert Work, Secretary of the Interior, will be honored by the University of Pennsylvania with the degree of doctor of laws at the University Day exercises, February 23, in the Academy of Music. The degree is to be conferred in recognition of Dr. Work's distinguished service in the Medical Corps during the World War, as Postmaster General and as Secretary of the Interior.

Jefferson Alumni Smoker.—Dr. Ross V. Patterson, dean, Jefferson Medical College, was reelected president of the college alumni association for the third time, February 12. His election preceded the midwinter smoker, which was attended by the oldest member of the association, Dr. William W. Keen, nestor of American surgery. Nearly 400 physicians present discussed plans for the college's one hundredth birthday, which is to be celebrated. Other speakers included Dr. Chevalier Q. Jackson, Dr. Francis X. Dercum and Dr. Edward E. Montgomery.

TENNESSEE

Smallpox at Memphis.—There were twenty-two cases of smallpox in Memphis, February 7—four more than were reported the previous week. The superintendent of the board of health said, it is reported, that the disease was still under control. Hundreds of persons were visiting the health office in order to be vaccinated.

UTAH

Control of Venereal Disease.—According to the January number of *Venereal Disease Information*, published by the U. S. Public Health Service, Salt Lake City is quarantining all persons found under circumstances which give rise to reasonable suspicion that they have venereal disease. Under this rule any situation that warrants a reasonable inference that the suspect is engaged in prostitution provides legal sanction for compelling an examination and if infected, to establish a quarantine and enforce treatment. The state board of health is cooperating in enforcing this measure.

WASHINGTON

Sanipractic "University" Charter Ordered Revoked.—Superior Judge Griffiths has ordered the charter of the American University of Sanipractice, Seattle, revoked, on the ground that the institution has engaged in the "wholesale and fraudulent sale of diplomas." Whether action will be taken against John E. Lydon, president of the school, and about 150 sanipractic "doctors" whose diplomas came from this school, will be determined, says the Seattle *Daily Times*, by the attorney general's office, which will start proceedings at once to make the charter decision effective.

WEST VIRGINIA

Smallpox.—The state health commissioner announced, February 2, that a severe form of smallpox had appeared in West Virginia for the first time in many years. The health officials of Marion County reported finding a patient who had recently come from Texas, having traveled while ill with smallpox. A warning has been issued by the state health department, urging that any person who traveled with this man be vaccinated.

WISCONSIN

Hygeia Used as Supplementary Textbook.—*Hygeia*, the journal of individual and community health, published by the American Medical Association, is being used as a supplementary textbook in hygiene and sanitation in the high school of Richland Center. More than 125 students in this school have subscribed to *Hygeia*. The superintendent has recommended that all of the high school students subscribe.

GENERAL

Health Officers' Visit Planned.—The health section of the League of Nations is arranging a visit to the United States and Canada of about ten persons, heads of health departments from Latin American countries, the purpose of which is to foster a better understanding between those countries and the United States. The visitors will spend a week in Havana, a week in Louisiana, and will visit other Southern states en route to Washington and Canada.

American Temporary Hospital Discontinued.—The American Temporary Hospital of the American Fund for French Wounded, at Rheims, France, which had been open since April, 1919, discontinued its service, Nov. 1, 1924, because of lack of funds. The permanent American Memorial Hospital at Rheims, now under construction, will be completed and turned over to French hospital authorities in April or May. It will contain 100 beds, all for children, and an observation pavilion of twelve beds. These beds are permanently endowed.

The Ella Sachs Plotz Foundation.—According to the first annual report of this foundation, the trustees received thirty-two applications for assistance from investigators in this country, Europe and Australia, and eight grants were made. Four of these grants bear on the general subject of chronic nephritis. Applications for grants for the year 1925-1926 should be in the hands of the executive committee before May 15, 1925, but consideration will be given to applications received before September 15 if the funds are not all assigned in the spring. The secretary of the committee is Dr. Francis W. Peabody, Boston City Hospital, Boston.

National Board of Medical Examiners.—Dr. John S. Rodman, secretary, announces that the addition of Michigan, Oklahoma and Wyoming, makes a total of thirty-one states which recognize the board's certificate as qualifying physicians to practice medicine in those states, in addition to Porto Rico, the military reservation of the Canal Zone, and England and Scotland. Favorable legislation is pending in ten other states, and it is expected that eventually the certificate granted by the board will be accepted in all parts of the country. The last written examination was held February 18-20 in twenty-six Class A medical schools throughout the country, the largest groups of candidates being examined at Harvard, Cornell, University of Pennsylvania, Johns Hopkins, University of Chicago and University of California. The address of the board is 1310 Medical Arts Building, Philadelphia.

American Heart Association.—The first annual meeting of this association was held, February 2, at the New York Academy of Medicine. Thirty-seven states are represented in the membership of the association. All the present members of the advisory council were reelected, and the following members added: Dr. Lindsly R. Williams, Dr. John Wyckoff, Jr., Dr. Robert Babcock, Dr. Joseph Miller, Dr. Henry Sewall, Dr. Emmet F. Horine, Dr. Frank N. Wilson, Dr. Ross V. Patterson, Dr. Walter Wilson, Dr. Samuel A. Levine, Dr. Burton E. Hamilton, Dr. F. Janney Smith, Mr. Alfred Aiken, Mr. William H. Hayes, Mr. Alfred B. Meacham, Mr. Herbert L. Kelly, Mr. Clayton M. Michael and Mrs. Fitz B. Talbot. The program adopted for the coming year comprises: (1) Maintenance of a central office. This office is already established but the personnel must be increased. (2) Organization and membership. One of the first and most important steps is that of securing contacts with all parts of the United States and Canada. This is to be accomplished by obtaining a large and widely distributed membership. (3) Educational work, comprising distribution of literature; publication of a monthly bulletin, lectures, loaning of charts and lantern slides, participation in meetings of medical and health organizations. (4) Field work. Workers shall be available to go to different sections of the country to encourage the establishment of new centers, demonstrate the methods found to be effective, and aid in solving local problems. Following the annual meeting, the board of directors elected Dr. Lewis A. Conner, New York,

president; Dr. James B. Herrick, Chicago, vice president; Dr. Robert H. Halsey, New York, secretary, and Dr. Paul D. White, Boston, treasurer. The central office is at room 1641, 370 Seventh Avenue, New York.

FOREIGN

Centennial of the Stomach Pump.—Professor His delivered an address on this subject recently at the Berlin Medical Society, claiming that the stomach pump should now celebrate its centennial, instead of being credited to Kussmaul at a later date. Kussmaul's description of his "new method of examining the stomach," appeared in 1869.

Personal.—Our Italian exchanges state that Senator and Professor Albertoni of the chair of physiology at Bologna has been invited by Prof. Lafayette B. Mendel, director, Sheffield Laboratory of Physiologic Chemistry at Yale University, New Haven, Conn., to continue his research work there after his approaching retirement on account of the age limit.——They relate further that Prof. Aldo Castellani, director, Institute for Tropical Diseases, London, has been offered the chair of tropical diseases, Tulane University, New Orleans, with the direction of a similar institute there.——The *Medizinische Klinik* mentions that Prof. W. Kolle, of the chair of medicine, Frankfort, director of the Institute for Experimental Therapy, has been invited to deliver the Herter and Harvey lectures at New York this spring. It adds that Müller, Noorden and Rubner were among those who delivered these lectures before the war.——Prof. Rudolf Kraus, Vienna, has been appointed general inspector of the centers for combating epidemics in Argentina.——Privatdozent Reenstierna, Stockholm, has been made a regular professor, and has been awarded a prize by the Swedish Medical Association for his research and publications on chancroid and its biologic treatment.——A Brussels exchange mentions that Voronoff and Proust have been sent by the French government to the Soudan, and flocks of sheep have been placed at their disposal for research on grafts aiming to increase production of wool.——Dr. Monrad-Krohn, professor of nervous diseases at Christiania, has been made chevalier of the Légion d'honneur by the French government. His large work "Technic for Clinical Examination of the Nervous System" has been recently translated into French by Souques.——Dr. Murk Jansen, instructor in orthopedics at Leyden, was tendered a banquet recently on his twenty-fifth professional anniversary, and substantial additions were made to the Jansen Foundation by former patients and the Netherlands Orthopedic Society.

Deaths in Other Countries

Clement Dukes, consulting physician to Rugby School, Rugby, England, and for thirty-seven years medical officer of that school; a contributor to Allbutt's System of Medicine, January 18, aged 79.——Dr. **H. C. Christoffersen**, chief of staff of the public hospital at Varde, Denmark, aged 55.——Dr. **Enrique Nogueras**, professor of pediatrics, Valladolid, aged 40.——The cable reports the death of **Julius Hirschberg**, emeritus professor of ophthalmology, Berlin, an honorary Fellow of the American Medical Association, aged 82.

Government Services

Conference on Oyster Sanitation

A conference of state and municipal health officers and representatives of the shell-fish industry was called by Surg. Gen. Hugh S. Cumming of the U. S. Public Health Service in Washington, D. C., February 19. Measures were considered for insuring safety from disease resulting from infected shell-fish.

Army Personals

Major Wilson C. von Kessler has been relieved from duty at Fort Sam Houston, Texas, and assigned for duty at the Letterman General Hospital, San Francisco.——Major Robert Skelton has been assigned to the Army Medical Center, Washington, D. C., for duty at the Army Medical School.——Major Arthur N. Tasker has been relieved from duty at the Army Medical School, Army Medical Center, Washington, D. C., and assigned to duty at Fort Humphreys, Va.——Capt. Royal S. Loving has been relieved from duty at Chilkoot Barracks, Alaska, on completion of his present tour of foreign service, and assigned to duty at Camp Lewis, Wash.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 7, 1925.

The Future of Man

Sir Arthur Keith, whose Hunterian lectures at the Royal College of Surgeons on "Recent Discoveries of Fossil Man" have attracted much attention, gave a special interview to the *Westminster Gazette* in which he dealt with the fascinating subject of the future of man. "Those who will inherit the earth," he said, "will not be people predominantly intellectual, but people of robust constitution with a good deal of what is called the animal in them." The brain of primitive man was bigger than that of man today, but the part of the brain that carries out intellectual operations is only a small part of the whole brain. A preponderance of intellect, he considers, reduces its possessor's happiness, making him too keenly conscious of man's frailty and weakness. He scouted the vision conjured up by novelists and others of the advent one day of a superman who would be all intellect. "Whatever may happen in the future," he said, "I think we may take it as certain that man will never develop into a huge-brained fellow, living only on pellets of energy and preoccupied only with abstruse mathematical and other problems." The extent to which people are intellectual is shown by the modern newspaper which deliberately sets itself the task of suiting popular taste. A Sunday paper with a big circulation gives an idea of the proportion of man's interest in intellectual matters as compared with "human" matters. Even the most intellectual paper does not give more than 5 per cent. of its space to intellectual matters. Sport, crime, sex, gambling and politics fill the bulk of its columns. Even cross-word puzzles Sir Arthur Keith regards as an ebullition of animal nature.

Compensation for Workmen

Statistics of compensation and of proceedings under the workmen's compensation act during the year 1923 have been issued by the home office as a parliamentary paper. They show an increase over the figures for 1922, both in the number of cases and in the amount of compensation paid. The number of persons who came within the provisions of the act in the seven great groups of industries in which returns are called for—mines, quarries, railways, factories, docks, constructional work and shipping—was 7,342,311, as compared with 7,205,609 in 1922. The number of cases rose from 392,912 in 1922 to 480,035 in 1923, an increase of 22.2 per cent., and the compensation paid rose from $32,478,640 to $35,670,480, an increase of 9.8 per cent. Taking the fatal and nonfatal cases separately, the number of fatal cases rose from 2,489 in 1922 to 2,657 in 1923, and the compensation paid increased from $2,734,445 to $2,955,820. The nonfatal cases increased from 390,423 in 1922 to 477,378 in 1923, and the amount paid from $29,744,195 to $32,714,660. The proportion of compensation paid in the seven industries in fatal cases was 8.3 per cent. The percentage for the different industries works out as follows: shipping, 31.7; factories, 6.3; docks, 10.1; mines, 7.4; quarries, 13.3; constructional work, 9.3, and railways, 19.2.

Modern Women

A severe criticism of the modern woman is made in the press by Sir W. Arbuthnot Lane. The primary factor in the development of cancer is, he thinks, the degeneration of the women by civilization. "The poor, badly nourished thing has lost most of the normal physical characters which are such a marked feature in the magnificently built savage;

her capacity to bear and produce children has become complicated by much trouble and innumerable sequelae which too often made life miserable; her sexual characters are very defective. She is degenerating also in size, so that the vast majority of them are puny and insignificant." The women of today he holds responsible for various other ills: Their brains are overstimulated by what is called education, by unsuitable foods, and by drugs; in consequence, the mortgage entailed by their sex makes an abnormally heavy demand on them. They are unable to provide sufficient nourishment for their offspring, and are obliged to fall back on the deleterious combinations provided for them by food chemists. Their unfortunate children, deprived of suitable food, become constipated, and their tissues are devitalized by poisons absorbed from their intestines. Their teeth are consequently defective, and their noses and throats are invaded by organisms, producing adenoids, large tonsils and pyorrhea, owing to the inability of these poisoned tissues to resist the invasion of the germs of disease. On the other hand, Lane praises the more primitive type: "The typical negress is a magnificent animal. Her diet is simple but sufficient, and she produces vigorous offspring. Compare her with the miserable specimens whom you may see, any day, in Regent Street—bobbed-haired, puny, insignificant, compared with the natives of West Africa, members of our community are but emasculated shadows."

Lane has been answered by an important medical woman. "Our women are progressing toward the truest and fullest womanhood," says Winifred Cullis, the first woman professor of physiology at the London School of Medicine for Women, who has had an extensive experience of women of all classes and ages. It is nonsense to say that the woman of today is degenerating physically or in any other way, she declares. "On the contrary, my experience is that women and girls were never so fine physically as they are now. The women of 1924 are physically superior to the women of a quarter of a century ago, and are steadily improving in physique and healthfulness. In every way my experience as a physiologist testifies to that fact. For instance, those bad cases of anemia which used to be so frequent a few years ago have almost entirely disappeared. The principal reason for this is that women have learned to lead more natural and healthy lives. Their clothes are more sensible. Our grandmothers used to struggle inside high steel corsets, which gave them an amazingly narrow waist-line, and, incidentally, interfered with their breathing. Faintings and hysteria were exceedingly common among women. How often do you hear of that sort of thing occurring among women today? If there are any deforming influences in the articles of attire worn by the women of today—and I seriously doubt it—they are nothing like so serious as they were twenty years ago. Rubber corsets do not interfere with respiration. Breathing is a vitally important point. The modern girl could not play tennis or hockey if she could not breathe. Another point is that the girl of today eats more than her grandmother did. In the old days it was considered not nice for a girl to eat heartily."

Vitamins in Bread

The crusade in favor of whole-meal bread, or at least a higher percentage of milling from wheat, has been revived. In a letter to the *Times*, Sir Clifford Allbutt supports the request for a richer flour, because of the advantages to health and the agreeable flavor, which promotes digestion. "Can any food," he asks "be more insipid than our present blanched loaf, which has lost the corny taste of the wheat?" As regards health, we speak of bread as the staff of life, especially of the lives of our children; and yet when we reduce our flour to mere starch we do not know what we are doing. Vitamins, it is true, are elusive bodies, and as yet we cannot catch and weigh them; but, for all their tenuity, of their potency there is no doubt. It is probable that these bodies, as well as certain mineral and other constituents of a sound diet, are eliminated with the offal. Even cellulose is reputed to have a certain value as a factor in nutrition. What we reject in the bread may be secured from other sources.

PARIS

(From Our Regular Correspondent)

Feb. 2, 1925.

The Election of a Professor of Clinical Ophthalmology at the Faculté de Médecine of Paris

The council of the Faculté de Médecine of Paris was recently called on to choose a successor to Professor de Lapersonne, the former occupant of the chair of clinical ophthalmology. Dr. Morax made application for the position, to which his well known and justly acquired reputation seemed to entitle him. But Dr. Morax, who for a number of years has been the director of the ophthalmologic department of the Hôpital Lariboisière, of which he has made a much frequented center of instruction, was not an agrégé professor of the medical faculty. For this reason alone, the members of the medical faculty on whom he had relied for the support of his candidacy were unable to bring sufficient influence to bear to effect his election. Only a few years ago, however, the incumbent of the newly created chair of propadeutics was chosen from outside the ranks of the agrégé professors. The admirers and friends of Dr. Morax thought they might reasonably take advantage of this precedent and support the candidacy of Morax, who seemed so eminently qualified for the post. The council of the medical faculty appointed Agrégé Professor Terrien to the chair of clinical ophthalmology.

Necrology

In the death of J. Bergonié, member of the Academy of Sciences and professor of physics and medical electricity at the University of Bordeaux, French electrology has lost unquestionably its chief exponent. Bergonié was the founder of the *Archives d'électricité médicale* and was the moving spirit of all the electroroentgenologic congresses. His first researches were on the subject of faradic high frequency currents and their action on arterial tension. He made diathermy better known, and by introducing into clinical practice methods of measurement and of regulation which are still employed, he contributed in large measure to the placing of medical electrology on a scientific basis and taking it out of the field of empiricism.

From the advent of roentgenology, he comprehended the full significance of this discovery, which was to give a new outlook to medicine. It was he who established the relation between the sensitiveness of cells to roentgen rays, on the one hand, and, on the other hand, their reproductive activity. This "law," now universally known and accepted, termed the "law of Bergonié and Tribondeau," has made it possible to establish the biologic bases of radiotherapy. During the war, Bergonié organized centers of physiotherapy throughout France. At Bordeaux he established a model center, which served as a standard for similar organizations. To aid in the location of projectiles in war wounds and to facilitate their extraction, he invented the electrovibrator which bears his name and which has come rapidly into vogue in all the surgical centers.

After the close of the war, Bergonié recognized the urgent necessity of a crusade against cancer, which was becoming more and more of a menace. He became the guiding spirit of this movement, and it was at his request, supported by the opinion of a special commission, that Minister Paul Strauss

established the regional anticancer centers. These centers are under the directorship of men trained in the practice of roentgenology, and are provided with all the equipment needed for the early diagnosis and treatment of curable cases. They are likewise centers of scientific research and of instruction. New centers are being constantly created, and the powerful impulse given by Bergonié would suffice to entitle him to our deepest gratitude. Always on the firing line himself, Bergonié became one of the first victims of the roentgen rays, which he used at first without protecting himself against their harmful effects, as yet unknown. As early as 1893, the first symptoms of the pathologic condition that was to prove fatal became manifest. In 1902, he suffered the amputation of two fingers of the right hand. Twenty years later, he was compelled to undergo the disarticulation of the shoulder, but he did not on that account diminish his courageous activity. In spite of the exacerbation of his condition, he continued to devote all his energies to the task in hand, thus furnishing a marvelous example of moral fortitude. He did not quit his post until the progress of the affection downed him completely, and it was on a stretcher that he came to the hospital for the last time the day Maréchal Pétain, in the presence of pupils and friends, bestowed on him the insignia of the grand cross of the Legion of Honor. He awaited death with serenity, and did not have to wait long. In addition to the movement of which he was the mainspring and which has been fraught with such great benefits to humanity, he furnished an example of nobility of soul that can never be effaced.

French medicine has been called on to mourn also the death of Jean Camus, agrégé professor of physiology and physician to the hospitals of Paris, at the age of 52, just as he was about to become the successor of his teacher C. Richet as the occupant of the chair of physiology. His research work has been of an important character. His investigations on the pathogenesis of so-called hypophysial syndromes, undertaken in collaboration with Roussy, have a classic value. He has shown that these syndromes deserved to be studied apart, and that in their production it is not the hypophysis cerebri that plays the chief part but rather the adjacent nerve centers. Thus, diabetes insipidus and the nutritive disorders that constitute the adiposogenital syndrome are of nervous and not of hypophysial origin. Camus published also interesting researches on the action of toxic substances injected into the cerebrospinal fluid; on muscular hemoglobin; on the fatty acids of the tubercle bacillus; also on hemolysis, hemoglobinuria and other subjects. There is no doubt that, if his career could have been more extended, it would have been even more fruitful in the field of medical research.

RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 15, 1925.

Colony for the Female Insane

Brazil has had for the last five years one of the best colonies for insane female patients in the world. It occupies a large area in one of the most agreeable suburbs of the capital—Engenho de Dentro. Its exhibit at the recent exposition held at Strasbourg, on Pasteur's centenary, made a deep impression on foreign physicians. The guiding principles are to arrange the patients' care, in such a way that mental recovery may be finally secured in the patient's own previous environment.

In completing five years' service as director of the colony, Dr. Gustavo Riedel has submitted to Prof. Juliano Moreira, director general of relief measures for the insane, a detailed report describing the work accomplished and the means available. The buildings include twenty new pavilions placed among gardens and parks, where the patients may enjoy life in the open air. Twice a week either moving pictures or theatrical performances are given. The clinics are well equipped. Potential mental cases are referred to an alienist.

Benefit is already apparent from the preventive measures in force in the colony. The dispensaries are fulfilling an important rôle. In 1923, thousands of patients were referred to the indirect prophylaxis service for further observation by visiting physicians and mental hygiene nurses. This personnel makes its inquiries at the patient's home and in her usual environment. In prevention, the underlying causes of insanity are divided into two groups—predisposition and immediate determining elements. Through clinical and laboratory examinations, an attempt is made to determine the presence of predispositions. This work belongs to the social section, and is in charge of a senior alienist, assisted by visiting physicians and mental hygiene nurses. The medical prophylaxis branch tries to prevent the development of mental disturbances in those predisposed. This is done after determining the immediate causative factors, and putting to practical use the suggestions offered by the laboratory.

Infantile Paralysis in Brazil

Dr. Rezende Puech, professor of clinical surgery for children in the São Paulo Medical School, presented to the Second South American Child Congress a report on poliomyelitis from which the following data are taken: In Brazil, thus far, the only statistical reports have been those of Clemente Ferreira on thirteen cases in 1910 in São Paulo, and Dr. Figueira, on 120 cases observed during a period of ten years at Rio de Janeiro. These have been the only papers on the epidemiology of this disease, although it appears sporadically in every Brazilian state. In addition, Dr. Salles Gones described an intensive outbreak in the little town of Villa Americana, São Paulo, with eighteen cases in four months. Dr. Puech's personal record covered 450 cases by April, 1924. These included cases from neighboring states and the federal capital, which were referred to him for treatment. Those seen in São Paulo state proper were 301, 221 in the capital, and eighty in the interior. Complete data are available for 206 cases. There is no information as to the date of the onset as to fifteen, all, however, prior to 1911. From 1912 to 1922, 184 cases were seen, all belonging to the capital of São Paulo. Of these, 111 occurred from October to March (summer and spring), and seventy-three from April to September (autumn and winter). This confirms the universal observation that infantile paralysis is more frequent in summer, but it also appears in winter. The years 1916, 1917 and 1921 were those during which the disease was most prevalent, thirty-six, twenty-six and thirty cases, respectively.

According to ages, the cases divide as follows: 1 year, 113 cases, i. e., 50 per cent.; 2 years, fifty-six cases, 25 per cent.; 3 years, twelve cases, 12 per cent.; 4 years, seven cases; five cases were in children 5 years old; fifteen cases, unknown age. No case was observed in any child more than 5 years old. As to sex, 140 were female and eighty-one male. As regards location of the paralysis, the data are not very valuable, as the majority of patients were seen at least two or more months after the onset. In general, the paralysis affected one of the lower extremities in 138 cases, and both in eighty-eight cases. The cases in which both lower and upper members were affected were fifty-six, divided as follows: thirty-five, crossed hemiplegia, upper extremity in one side and lower in the other; twelve, triplegia, both lower extremities and one of the upper ones; in nineteen the four members were affected. In fifteen the injuries were limited to the upper members, on both sides in five. The muscles of the neck were definitely involved in six patients;

those of the face in three, and those of the trunk, abdomen and chest in thirty-two. After three years the residual paralysis in those patients who could be reached were thus distributed: in 90 per cent., marked involvement of extensors, as compared to flexors of the hip; persistence of the paralysis of the abductors of the hip in 90 per cent.; in the leg, predominance of the paralysis of the flexors of the back, as compared with the flexors of the sole in 80 per cent., and predominance of the paralysis of the abductors and evertors as compared with the abductors and invertors in 70 per cent. In the upper members, the residual paralysis affected primarily the deltoid and the flexors of the forearm. In almost all the cases of paralysis of the muscles of the abdomen and back, the weakness persisted. As already observed by others, it was confirmed that cases of quadruplegia, triplegia, left a residual monoplegia, usually involving the lower members. The paralysis of the muscles of the neck disappeared without leaving any signs, with the exception of three cases of torticollis from secondary retraction. Altogether, these observations confirm previous data as to the course of infantile paralysis. The greatest difference as compared with American reports is that while they stress the presence of valgus deformities in the lower members, in this country there is a predominance of varus.

Disappearance of Smallpox

After many years of an intensive campaign during which the number of cases of smallpox has decreased gradually in Rio de Janeiro, the disease has at last completely disappeared from the statistics. Vaccination, however, will continue to be enforced.

BERLIN

(From Our Regular Correspondent)

Jan. 24, 1925.

The Limits of Food Production and the Overpopulation of the Earth

Owing to the discrepancy between the area and the population of Germany, the significant doctrine of Rev. T. R. Malthus (1766-1834) takes on added importance. Our well known geographer Professor Penck deals with this problem under the title: "Hauptproblem der physischen Anthropogeographie." The relations between food production and the population of the earth, expressible in simple mathematical formulas, show that the number of persons who can inhabit the earth is of necessity limited. Once every foot of soil on the earth shall become cultivated to its highest capacity, the population of the earth cannot increase beyond the number that the cultivated area can support. It is possible to determine the potential population of the earth as revealed by our present knowledge of the nature of the earth's surface. The maximal population that a given region will support depends on its natural characteristics, chief among which is its climate. In seeking a solution to this problem, the flora of a region gives valuable clues, since the flora is an actual index of its fertility. Professor Penck has figured out laboriously the maximal potential populations of various regions, from the countries with moist, hot climates to the polar lands, and gives a fairly accurate estimate of the maximal potential population of the earth. He gives from eight to nine billion inhabitants as the maximal population in the light of present-day knowledge. He estimates the actual total population of the earth at 1,800,000,000. The earth, therefore, is populated up to only one fifth of its capacity. However, it is true that not a few countries are relatively overpopulated; that is, their actual population exceeds their natural population under existing conditions, and some regions are overpopulated in an absolute sense; that is, their actual population exceeds their potential population. According to Professor Penck's computations, an overpopulation of the earth will not be reached until there are from fifty to sixty inhabitants per square kilometer, on an average, instead of twelve, as at present. Though we may seem far removed from the maximal potential population of the earth, mankind during the last fifty years has made giant strides in that direction. If the present rate of increase is preserved, the maximal population that the earth can support will be reached in less than 300 years, while the potential population of the temperate zones will attain the maximum in about 150 years. Of the eight billion potential population of the earth, five eighths are assigned to the tropics and three eighths to the temperate zones. In the latter, the greatest possible density of population would be thirty-four and in the tropics 107 per square kilometer. Much more compelling than the malthusian doctrine is the consideration that the number of inhabitants that the earth can support is subject to narrow limitations, not because the increase in the population is more rapid than the increase in food production but rather because the food production, owing to the limitations of the food-producing area, is itself limited. These researches give rise to many important problems in economics. The adjoined table gives Professor Penck's figures for the potential population of the various continents.

	The Whole Earth	Eurasia	Africa	Australia	North America	South America
Actual population in 1925....	1.8 billion	80%	7%	0.5%	9%	3.5%
Possible (potential) population.....	8 billion	59%	20%	0%	14%	25%

Brazil appears as the country having the greatest capacity for an immense growth in population. Penck figures that Brazil could accommodate a population of nearly 1,200 million. The two great North American commonwealths, the United States and Canada, combined, could not take care of a greater population than Brazil or the remaining South American states taken collectively (1,200 million). It will be seen that the Portuguese and Spanish speaking peoples of South America present wonderful possibilities for the future. A glance at the table will show that Eurasia may cease to play the leading rôle as the nursery of the human race and that this part may soon be taken over by Africa; for, the fact is, Eurasia cannot itself sustain much more than 25 per cent. of the total population of the earth, although it has today 80 per cent. of the population.

To be sure, it must not be too readily assumed that the distribution of man over the earth will be determined by the sole factor of the relative productivity of the various regions. As is the case today, so also in the future, trade and commerce may enable persons living in one part of the globe to consume the grains and fruits produced in another region. It is therefore doubtful whether the tropics, even when they shall have become the chief production center of human foodstuffs, will be, at the same time, the main center of population; for they may be, as the political economist F. List held, only the world's "granaries." Professor Penck believes that the part played by commerce will depend technically on the earth's coal and iron supplies, which are also limited. The drama of human life is played on a stage of limited dimensions. In the face of threatening overpopulation, Penck does not hold that the moral restraint recommended by Malthus is indicated at the present time, as there is still room on earth for many million more inhabitants. Later, when new outlets for congested populations will have to be secured at the expense of conflict, much loss of life is likely to result. Especially the clearing away of the primeval forests of the tropics is sure to cost many lives. A retarda-

tion in the increase of the population of the earth will thus be brought about and will not need to be sought through self-limitation, which might easily prevent the birth of the most capable. However, the general tendency toward an increase of population will make a more rational cultivation of the soil imperative. And from the standpoint of political economy, Professor Penck's closing words are therefore full of significance: "There is no compelling necessity as yet to break with the traditions of the past, but the time will come if the population of the earth continues to increase."

Demands by Physicians for a Readjustment of the Membership of Health Insurance Societies

One of the most hotly contested features of health insurance legislation is the right accorded to members of health insurance societies to keep up their health insurance even when, owing to an increase in earned income, they would no longer be entitled to become members of a health insurance society. Physicians have become quite accustomed to see owners of factories who have come up from the ranks take advantage of the privilege of remaining a member of a health insurance society and claim treatment at the hands of panel physicians for the monthly fee of from three to four marks, or to have the son of a "councilor of commerce," who is employed in a machine factory as a "volunteer," drive up in his automobile before the office of the panel physician and expect treatment for the same fee as that paid by workmen. But that the chairman of the supervising council of a stock company should be obliged to be a member of a health insurance society is a new idea even to the directors of such societies. The matter becomes all the more remarkable when it is known that the chairman in question is drawing a high pension as an ex-state official which in itself is in excess of the amount that, according to law, constitutes the maximal wages that a workman may receive and still claim the privilege of being a member of a health insurance society. The reason the said chairman is compelled by law to be a member of a health insurance society is that he is employed by a stock company as business manager at a monthly salary of 130 marks. On the basis of the workmen's health insurance law, which, as is well known, is intended to protect those who have a very limited income from the bad effects of disease and loss of employment due to incapacitating injuries and illness and thus serve to maintain a peaceful condition of society, the chairman of the supervising council, a pensioned state official, is legally required to be a member of a health insurance society.

The result of the publicity growing out of this case has been that physicians are demanding with emphasis that the health insurance law be so modified that the amount of the total income of an applicant be made the basis that shall determine whether or not a given person must belong to a health insurance society (or may continue to be a member) and not the wages that the applicant receives.

Marriages

Evelyn Marynia Lawther Foot, Red Wing, Minn., to Mr. John H. Farnham of St. Paul, in January.

Jerry Sheridan Bell to Miss Vera Ellen Paxson, both of Fort Wayne, Ind., at New York, recently.

Dean Hart Le Favor to Miss Mina Patterson, both of Glouster, Ohio, at New York, recently.

William C. Kenner, Jr., Omaha, to Miss Theodosia Kroehler of Stillwater, Minn., recently.

Francis Paul Bennett to Miss Esther Heidman, both of Alliance, Ohio, January 3.

Deaths

Burt Green Wilder, Newton, Mass.; Medical School of Harvard University, Boston, 1866; emeritus professor of neurology and vertebrate zoology, Cornell University, Ithaca, N. Y.; formerly lecturer on physiology, Medical School of Maine, Portland, and the University of Michigan, Ann Arbor; formerly vice president, biological section, American Association for the Advancement of Science; past president of the American Neurological Association and the Association of American Anatomists; author of "Health Notes for Students," and other books, and co-author of "Anatomical Technology"; Civil War veteran; aged 83; died, January 21.

Henry Burt Stevens ● Boston; Medical School of Harvard University, Boston, 1894; member of the American Academy of Ophthalmology and Oto-Laryngology, and the New England Ophthalmological Society; served in the M. C., U. S. Army, with the rank of captain, during the World War; on the staffs of the Boston City Hospital and the Massachusetts Charitable Eye and Ear Infirmary; aged 55; died, January 31, of pneumonia.

Joseph John Burke, Philadelphia; Jefferson Medical College of Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; consulting physician to the Misericordia Hospital; for several years member of the board of education; aged 58; died suddenly, February 5, of heart disease.

James Boyd Neal, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1883; served as medical missionary in China with the board of foreign missions of the Presbyterian Church; aged 69; died, February 5, at the Methodist Episcopal Hospital, following a long illness.

Clyde S. Brewer, Waukesha, Wis.; College of Medicine and Surgery, Chicago, 1902; Bennett Medical College, Chicago, 1912; member of the State Medical Society of Wisconsin; served in the M. C., U. S. Army, during the World War; aged 50; died, January 18, of carcinoma.

Charles Josiah Lewis, Chicago; Rush Medical College, Chicago, 1865; member of the Illinois State Medical Society; formerly professor of neurology, College of Medicine and Surgery, Chicago; aged 86; died, February 12, of valvular heart disease and chronic bronchitis.

William L. Gilmer, Mount Washington, Mo.; Marion-Sims College of Medicine, St. Louis, 1892; member of the Missouri State Medical Association; aged 59; died, February 2, of injuries received when the automobile in which he was driving was struck by a train.

Richard Henderson Taylor, Hot Springs National Park, Ark.; University of Pennsylvania School of Medicine, Philadelphia, 1857; Confederate veteran; member of the board of education for thirty years; aged 87; died, January 19.

George E. Royeraft, Petoskey, Mich.; Detroit College of Medicine and Surgery, 1895; formerly mayor of Petoskey; one of the founders and on the staff of the Petoskey Hospital, where he died, January 26, aged 50.

Charles Percival Lingle, Newark, N. J.; Hahnemann Medical College of Philadelphia, 1911; served in the M. C., U. S. Army, during the World War; aged 40; died, Dec. 21, 1924, at Middletown, Pa., of heart disease.

Phocion B. Lusk, Guntersville, Ala.; Bellevue Hospital Medical College, New York, 1891; past president of the Marshall County Medical Society; formerly county health officer; aged 58; died in January.

Frederick James Goodridge, Cambridge, Mass.; Medical School of Harvard University, Boston, 1902; member of the Massachusetts Medical Society and the Boston Orthopedic Club; aged 51; died in January.

Caroline B. Hopkins ● Glencoe, Ill.; Northwestern University Woman's Medical School, Chicago, 1897; aged 52; died, February 12, at the Ravenswood Hospital, Chicago, of obstructive jaundice and uremia.

Clarence Case Goddard ● Leavenworth, Kan.; Bellevue Hospital Medical College, New York, 1873; past president of the Kansas Medical Society; aged 75; died, January 28, of cerebral hemorrhage.

John Thomas Striplin, Roanoke, Ala.; University of Georgia Medical Department, Augusta, 1899; member of the Medical Association of the State of Alabama; aged 53; died, January 21.

Birger Petera, San Francisco; Cooper Medical College, San Francisco, 1895; aged 67; died, January 25, at the San Francisco Hospital, of arteriosclerosis and chronic myocarditis.

James Monroe Dart, Salt Lake City; New York Homeopathic Medical College and Hospital, New York, 1875; Civil War veteran; aged 85; died in January, at Roxbury, N. Y.

Bryan Handley ● Corrigan, Texas; Baylor University College of Medicine, Dallas, 1922; aged 28; was killed, January 25, when the automobile in which he was driving overturned.

Daniel Leonard Pratt, Towanda, Pa.; Jefferson Medical College of Philadelphia, 1875; member of the Medical Society of the State of Pennsylvania; aged 71; died, January 27.

David Warren Miller, Gilman, Ill.; Jefferson Medical College of Philadelphia, 1880; president of the board of education; aged 70; died, January 18, of cerebral hemorrhage.

Robert Goodman Bloomfield, Oklahoma City; Rush Medical College, Chicago, 1884; aged 64; died, Dec. 23, 1924, at the University Hospital, of a self-inflicted bullet wound.

Isabelle Delaney Barbour, New York; Woman's Medical College of the New York Infirmary for Women and Children, 1893; aged 60; died, January 27, of pneumonia.

Samuel Ellsworth Gayman ● Britton, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1912; aged 38; died, January 23, at a hospital in Oklahoma City.

James S. Rogers, Sedalia, Mo.; University of Michigan Medical School, Ann Arbor, 1867; Civil War veteran; aged 81; died suddenly, January 26, of heart disease.

Charles Rogsius Mann, Perry, Ga.; Jefferson Medical College of Philadelphia, 1858; Confederate veteran; aged 76; died, January 24, of a self-inflicted bullet wound.

James Taylor Dorsey, Lexington, Ky.; Kentucky University Medical Department, Louisville, 1905; aged 48; died, January 23, at St. Joseph's Hospital, of uremia.

Fred Kimball Swett, Washington, D. C.; George Washington University Medical School, Washington, 1889; aged 67; died, January 10, following a long illness.

Henry Albert Carpenter, Lansing, Mich.; Hering Medical College, Chicago, 1895; aged 71; died, Dec. 11, 1924, at St. Lawrence Hospital, of heart disease.

Robert Harold Harrison, Tacoma, Wash.; University of Dublin, Ireland, 1882; formerly county health officer; aged 66; died, Dec. 30, 1924, of pneumonia.

William Henry Whitelaw, Memphis, Tenn.; Vanderbilt University Medical Department, Nashville, 1886; aged 65; died, January 23, of angina pectoris.

Gilbert Osborne Wood ● Framingham, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1905; aged 47; died, January 19.

Aaron Lewis Newton ● Northfield, Mass.; Albany (N. Y.) Medical College, 1898; aged 58; died, January 24, at the Corey Hill Hospital, Brooklyn.

Robert Hartlie Pearce, Claussen, S. C.; Medical College of the State of South Carolina, Charleston, 1890; aged 57; died, January 1, of heart disease.

Allek Van Zandt Robinson ● Beatrice, Neb.; Bellevue Hospital Medical College, New York, 1881; died suddenly, January 24, of heart disease.

William Clarence Gould, Bells, Texas; University of Louisville (Ky.) School of Medicine, 1910; aged 39; was shot and killed, January 6.

Abraham Ashbaugh, Rocky Ford, Colo.; Rush Medical College, Chicago, 1877; aged 72; died, January 3, following a long illness.

Alexander W. Trout, Perry, Iowa; Rush Medical College, Chicago, 1867; Civil War veteran; aged 80; died, January 8, of senility.

Frank Guillaume, Chicago; Chicago Homeopathic Medical College, 1890; aged 68; died, February 8, of dilatation of the heart.

Elliott Colburn Low, Plattsburg, N. Y.; Hahnemann Medical College of Philadelphia, 1866; aged 81; died, January 3.

Jacob Wolf, Milwaukee; University of Louisville (Ky.) School of Medicine, 1884; aged 79; died, January 21.

Isaac E. Smith, Pecos, Texas; Missouri Medical College, St. Louis, 1883; aged 66; died, January 1, at Houston.

Henry Spencer Moore, New Bern, N. C.; Leonard Medical School, Raleigh, 1907; aged 46; died, Oct. 1, 1924.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

BEFSAL

Another Alleged Synthetic

A number of inquiries have been received concerning a preparation widely circularized to physicians under the name "Befsal." One correspondent, a dean of a college of pharmacy, writes:

"Many local physicians have evidently been detailed about the following preparation, and are asking the drug stores what they know about it. They give the chemical name as dibenzyl-diethyl-methylene-disalicylic-dipyruvic (cinchoninic) acid. It was mentioned in some paper written by Dr. Lambert Ott of Philadelphia. I wrote to Dr. Ott about it and he wrote back, giving me the trade names for it as Befsal and Pyrano-phen. He also stated that he was getting out an Iodo-befsal. His reply was a form letter much in the nature of advertising. The preparations are used for rheumatism. He sent along an outlined treatment and diet which in detail should cure the rheumatism without the Befsal."

A physician from South Dakota inquires:

"Can you give me a line on Befsal as put out by Synthetic Organic Products Co., Inc., New York? They seem to make quite some claims for their products."

A physician from Connecticut writes:

"I would be greatly obliged to you if you would give me any information on a new compound named Befsal put up by Dr. Summers."

And from Colorado:

"The enclosed reprint came to my desk and never having heard of the drugs mentioned I wrote for further information and received the enclosed letter yesterday. It looks 'fishy,' so I am writing you for a report on the doctor and his wonderful drugs."

Befsal seems to be exploited from two sources: Dr. S. Lewis Summers, Fort Washington, Pa., and the Synthetic Organic Products Co., New York City. Each exploiter gives an alleged formula for the product, but the two formulas are totally dissimilar. Two years ago Dr. S. Lewis Summers, "Producer of Synthetic Organic Chemical Compounds," was selling it under the chemical name dibenzyldiethylmethylene-disalicylicdicinchoninic acid (whatever that means) with the formula $C_{56}H_{48}O_{16}$. In another advertisement Dr. Summers called the product "the Chinchoninic Acid and Benzylester Compound of A-F-Sal."

The Synthetic Organic Products Co., Inc., of New York (president: Joseph C. Richard) sends out circular letters that are practically the same as those sent out by Dr. Summers. This firm gives the same type of ambiguous chemical name to Befsal as that given by Summers, but the formula, as given on the label, is quite different, namely, $C_{30}H_{30}O_{10}N_2$.

The preparation is extensively puffed by Lambert Ott, M.D., who, a number of years ago, sang the praises of A-F-Sal. In reply to an inquiry, Dr. Ott (in a circular letter) states that Befsal can be obtained from C. A. Harold, a pharmacist in Philadelphia; he speaks of the product as the "benzyl-ethyl esters of pyruvic acid compound of methylene disalicylic acid."

It may be recalled that fifteen or more years ago S. Lewis Summers was piloting the Organic Chemical Manufacturing Company, which put out a line of "Formosal" compounds. One was A-F-Sal (also sold under the name 'Urasol), claimed to be "Acetyl-Methylene-Disalicylic-Acid." This substance is alleged to be the basis of Befsal. In an investigation on the value of internal antiseptics, made for the Council on Pharmacy and Chemistry, Sollmann reported (in 1908) that he found A-F-Sal pronouncedly and persistently nauseating. While the A-F-Sal advertisements claimed that formaldehyd was gradually split off and acted as a urinary solvent, Sollmann found no evidence that formaldehyd was split off in the body, or that the compounds had any discoverable antiseptic action on the urine. He could find no ground for the claimed surperiority over salicylates, and

held the claim that "they are the most valuable salicylic acid compounds known" a gross exaggeration.

The manufacturer and a firm of chemists, Samuel Sadtler and Son, attacked the report. The Council appointed a referee, and after the examination of evidence, supplemented by independent work, the findings of Sollmann were confirmed. Subsequently the firm filed suit against the American Medical Association; but as in many other cases the suit never came to trial, and the vast amount of evidence in the possession of the Association was never utilized.

In circular letters sent out in 1924 by both Summers and Richard occurs the following paragraph:

> "The established proof of o-f-sal (acetyl-methylene-disalicylic acid) exerting the function of a scavenger in removing offsite products from the system, was exhibited by Prof. Samuel P. Sadtler, Ph.D., LL.D., in pamphlets issued by *Journal of A. M. A.* in his evidence of the large percentage of salicyl-uric acid found in the urine, as a result of the combining power of the salicyl radical, when liberated from o-f-sal in the system, with a purin body."

The misleading character of this statement, which is identical with that used in advertising A-F-Sal twelve years ago, lies in the fact that the work of Sadtler referred to as "in pamphlet issued" by THE JOURNAL is the very evidence which was advanced by the firm and so effectively disposed of by the Council on Pharmacy and Chemistry whose report of the matter was published in reprint form!

THE SPECIMENS

A package of Befsal was ordered from C. A. Harold, the Philadelphia pharmacist recommended by Dr. Lambert Ott. In due time a package arrived (price $3) containing two ounces of a black powder, having an odor resembling certain types of fertilizer. On the label appeared the following:

BEFSAL
DIBENZYL-DIETHYL-METHYLENE-DISALICYLIC-DICINCHONINIC ACID

Adult dose—90 to 180 grains per day

DR. S. LEWIS SUMMERS
Producer of
SYNTHETIC ORGANIC CHEMICAL COMPOUNDS
Fort Washington, Penna.

The A. M. A. Chemical Laboratory made some tests on the product and reported that it could not be considered a "synthetic" but appeared to be a crude mixture. The ash alone amounted to 12 per cent. and consisted essentially of iron oxid. Elementary sulphur was present in the original material in relatively large amounts. The amount of material that was insoluble in boiling alcohol was 47 per cent.; with cold alcohol (22 C.) the amount of insoluble material was 70 per cent. Tests indicated the presence of some combined salicylic acid. The presence of cinchoninic or phenylcinchoninic acid could not be confirmed. The product cannot, therefore, be considered a chemical compound with a definite formula as described by S. Lewis Summers; obviously it does not have the composition claimed for it.

Another specimen of Befsal was ordered, this time from the Synthetic Organic Products Co., New York. This bore a somewhat different label than on the specimen just described; thus:

BEFSAL
$C_{36}H_{36}O_{10}N_2$
SYNTHETIC ORGANIC
PRODUCTS CO., INC.
227 Sixth Ave. New York

The product itself also differed. It was a brown powder, with an aromatic odor resembling ethyl salicylate. Practically no ash was left after ignition. Like the other specimen, however, the product was a mixture of substances, one fraction of which was soluble in ether, another fraction soluble in alcohol. There was a considerable amount of resinous material present. Under the microscope the product appeared as a heterogeneous mixture and not as a definite compound. Combined salicylic acid was found to be present.

The A. M. A. Chemical Laboratory reports that while the product is not as crude as the specimen obtained from C. A. Harold, yet it is obviously not a definite synthetic, and that it is highly improbable that it has such a formula as that ascribed to it ($C_{36}H_{36}O_{10}N_2$). The Laboratory concluded that the product known as Befsal is of varying and unreliable composition and that it is unlikely that such a substance as dibenzyldiethylmethylenedisalicylicdicinchoninic acid can exist.

THE ADVERTISING

As mentioned before, Befsal is puffed by Dr. Lambert Ott. Circulars from both "S. L. Summers Producer of Organic Chemicals" or the "Synthetic Organic Products Company, Inc.," refer to an article by Dr. Ott, published in the August, 1922, issue of *American Physician*. Reprints of this article have been sent to physicians, many of whom have sent skeptical inquiries to THE JOURNAL concerning the product. Dr. Ott's article contains no scientific data, and reports very few cases, and no controls. Curiously enough, however, the conclusion of the article endorsing Befsal is almost word for word the same as that of an article praising A-F-Sal, published in 1911!

In common with the exploitation of "patent medicines" for rheumatism, there is dragged in the uric acid hypothesis—a hypothesis long ago discarded by scientific medicine. Dr. Summers, one of the promoter-producers, also endows Befsal with unusual virtues, claiming that the product possesses "marked internal antiseptic value and in sufficient dosage is more of a specific in acute rheumatism than is quinin in malaria. In fact, so potent in rheumatic disorders is Befsal that it can be used as a means of diagnosis."

Correspondence

A NEW METHOD OF MEDICAL SOCIETY WORK

To the Editor:—The Association for Research in Nervous and Mental Diseases has now worked successfully on new and unique lines for more than five years. I believe it is time that the profession should understand its methods and realize that the old-fashioned medical society meetings, with their set papers and more or less casual discussions, are not the ideal method of expression, although the accepted fashion of a hundred years. I propose to set forth the make-up, methods and aims of this new association; for I believe that they should be widely introduced in medical organizations generally.

To begin at the beginning: The officers consist of a president, vice president, secretary-treasurer, assistant secretary-treasurer, and a commission of from twenty to thirty men, nominated by a committee and elected by the society. The membership is composed of physicians who belong to the neurologic societies of the United States and Canada, and of physicians designated by officers of these societies as having good standing in medicine and real interest in neurology and psychiatry. The annual dues are $10.

One meeting a year is held, and this lasts two full days. At this meeting contributions are made on one topic only, as, for example, "Epilepsy" and "Heredity." These contributions must represent research; and for such research the special topic is chosen one or two years ahead. Different phases of the topic are assigned to persons who are most fit and willing for the special work. Thus, for the year 1926 the subject assigned is that of "The Anatomy, Functions and Pathology of the Cerebellar Mechanism and Its Adjuncts," and twenty-five different phases of it are assigned to as many men. Members can prepare as long, full and complete

articles as they choose, but they are allowed, at the most, twenty minutes in which to give their views. Previous to presenting the paper, it or an abstract of it is given to selected members of the commission, who thus become familiar with what is to be presented. After the reading, there is no discussion, but the reader is cross-questioned by the commissioners, and an effort is made to criticise intelligently the speaker and to draw out all that he knows or has to say on his topic. This lengthens his paper in a way, but lengthens it along the lines desired by those intelligently informed. After the commission's questionnaire, the members in general can continue it. The papers read at each annual meeting are published in full or abstract in a book, and the questions and answers are added to it. This has made the volumes that have been so far published more interesting and readable.

The subjects so far studied have been: (1) epidemic encephalitis; (2) multiple sclerosis; (3) epilepsy; (4) heredity in nervous and mental disease, and (5) the spinal fluid. This year the subject will be dementia praecox (schizophrenia), and in 1926, the cerebellar mechanism and its adjuncts.

The attendance at the meetings has always been adequate, and there has been a general expression of peculiar satisfaction over the matters presented and of the unique methods of the association.

A special, though incidental, merit of this method consists in the fact that the meetings bring in men who are not necessarily specialists in neurology and psychiatry, but may be internists, surgeons, biologists and specialists in outside lines.

We feel sure that this association's plan of proceeding could be adopted by other organizations, not regularly, as it involves too much work, but at certain periods—say once or twice a year. County and local medical societies and academies could easily have at least one meeting of this kind yearly, and it would surely enliven and interest these organizations, adding to their social as well as scientific value.

Any further particulars concerning what has come to be called "the commission plan" of society meeting can be obtained of the secretary, Dr. Henry Alsop Riley, 680 Madison Avenue, New York.

CHARLES L. DANA, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MARGINAL RÂLES

To the Editor:—I will appreciate very much any information you can give me on the subject of marginal râles. I especially wish to know who originated the name and what the characteristics may be as to their location, quality and persistence. These râles have received scanty attention in the books on tuberculosis and physical diagnosis so far as I have been able to investigate.

H. F. GAMMONS, M.D., Alexandria, La.

ANSWER.—Marginal, border, atelectatic râles, on account of their inconstant nature often referred to as evanescent râles, are in a sense nonpathologic sounds produced in the pulmonary parenchyma, in contradistinction to the inspiratory crackling râles heard over pathologic areas of the lung, which are more or less permanent. These sounds are best studied at the borders or margins of the lungs; at the anterior chest wall about the sixth rib and at the lingula pulmonalis; in the axillary line at the level of the eighth rib; posteriorly at the level of the tenth rib; along the free borders of the lungs near the sternum anteriorly, the spine posteriorly, and occasionally at the apexes in indurated areas that have collapsed. Such sounds are frequently heard while auscultating the chest wall of the aged and the feeble, in those who habitually breathe feebly or superficially, when on deep inspiration and expiration, inflation and deflation, the moist walls of the unexpanded alveoli are suddenly forced asunder by the entering air, producing crepitating or crackling sounds, which, after a few deep inspirations, become wholly lost, to return again after a short interval of rest of the usually sluggish and for some time unexpanded lung tissue. These sounds and their nature are fully described in most treatises on physical diagnosis and in nearly every good handbook of tuberculosis.

TOXICITY OF MERCUROCHROME-220 SOLUBLE

To the Editor:—1. What, if any, reports are there as to the toxicity of mercurochrome-220 soluble when administered by mouth? 2. What, if any, reports are there as to the effect of mercurochrome-220 soluble on the intestinal flora, when given by mouth? 3. What, if any, reports are there as to the efficacy of mercurochrome-220 soluble as a gargle?

C. M. C., Iowa.

ANSWER.—1. The following occurs in "The Use of Mercurochrome by Mouth as a Urinary and Intestinal Antiseptic," by Young, Scott and Hill (*J. Urol.* **12**:237 [Sept.] 1924):

> This report is admittedly preliminary, and further studies which are being made will be presented in detail later on. To date, however, our work is sufficient to show that mercurochrome given by mouth is innocuous; that it causes little or no gastro-intestinal disturbances until it has been taken in big doses for a week or more.

2. The following appears in the same article:

> Two types of variation were found to occur after the administration of mercurochrome by mouth; first, a drop in the total number of bacteria, and, second, a drop in the number of colon group bacilli.

3. According to Gray and Meyer (*J. Infect. Dis.* **28**:323 [April] 1921), they were able to render diphtheria carriers free from the diphtheria bacilli in eighty-eight cases by application of from 0.5 to 2 per cent. solution of mercurochrome-220 soluble. This finding obviously requires confirmation in a considerable number of cases before it can be accepted.

INTRAMUSCULAR INJECTION OF ETHER

To the Editor:—In an abstract (THE JOURNAL, January 24, p. 322), mention is made of Audrain's method of intramuscular injection of ether. Will you please tell me the points peculiar to it or where I may find this technic described?

HOMER SCOTT, M.D., Little Rock, Ark.

ANSWER.—Audrain injected the ether intramuscularly in the buttocks, using from 1 to 2 c.c. every other day. Other investigators have reported the use of slightly larger doses. Mason's dosages were: first day, 0.5 c.c., two injections; second day, 1 c.c., two injections; third day, 1.5 c.c., two injections; fourth day, 2 c.c., two injections; fifth day, 2 c.c., one injection; each day thereafter, the same amount as on the fifth day. These dosages were slightly reduced for children under 1 year.

Audrain, J.: Ether Injections in Whooping Cough, *Bull. et mém. Soc. méd. d. hôp. de Paris* **44**:795 (June 11) 1920.

Audrain, J.: Ether in Treatment of Whooping Cough, *Médecine* **1**: 694 (Aug.) 1920.

Panayotatou, A.: Twenty-Five Cases of Whooping Cough Treated by Injections of Ether, *Brit. J. Child. Dis.* **20**: 151-153 (July-Sept.) 1923.

Mason, C. C.: Treatment of Pertussis with Intramuscular Injection of Ether, THE JOURNAL, Dec. 22, 1923, p. 2114.

Genesoy, G.: Ether in Whooping Cough, *Policlinico* (sez. prat.) **29**: 1105-1111 (Aug. 21) 1922.

CEREAL-MILK DIET

To the Editor:—I should like to know the foods necessary to supplement a diet consisting of milk, 2 quarts, and Indian meal a day, for an adult. Is this diet sufficient? Our A B C's have us worrying again. Please omit the name.

M.D., Mass.

ANSWER.—To make the diet of two quarts of milk and Indian meal quantitatively sufficient would require approximately one pound of the Indian meal a day. Such a diet then would contain enough protein, too little fat and an excess of carbohydrate. It would be lacking in iron, would contain plenty of other minerals, of fat soluble A vitamin, and water soluble B, but unless the grain had germinated would lack the antiscorbutic vitamin. On the whole, a cereal-milk diet for an adult is not satisfactory; more fat, less carbohydrate and some of the antiscorbutic and iron containing fruits and vegetables are needed. In this case, fresh vegetables and orange or lemon juice should be added, and some of the needed calories should be supplied by fats in the form of butter, cream, oil or some animal fats.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 3. Sec., Dr. Harry C. De Vighne, Juneau.
MAINE: Portland, March 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.
MASSACHUSETTS: Boston, March 10-12. Sec., Dr. Charles E. Prior, 144 State House, Boston.
MISSOURI: St. Louis, Feb. 24-27. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City.
NEW HAMPSHIRE: Concord, March 12-13. Sec., Dr. Charles Duncan, Concord.
PORTO RICO: San Juan, March 3. Sec., Dr. D. Biascoechea, Box 804, San Juan.

Colorado October Examination

Dr. David A. Strickler, secretary, Colorado Board of Medical Examiners, reports the written examination held at Denver, Oct. 7, 1924. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 13 candidates who took the physicians' and surgeons' examination, 6, including 1 osteopath and 1 undergraduate, passed and 7, including 1 undergraduate, failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons		(1921)	85
University of West Tennessee		(1918)	75
University of Toronto		(1918)	76.2
University of St. Vladimira, Kiel, Russia		(1921)*	79.3
Undergraduate			76.7
Osteopath			77.5

College	FAILED	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery		(1924)	60.2
Kansas City University of Physicians and Surgeons		(1919)	71.2
St. Louis College of Physicians and Surgeons (1922), 60.4, (1923) 54.3		(1921)	68.7,
Meharry Medical College		(1924)	54.5
Undergraduate			62.5

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1896)	Illinois
Northwestern University		(1902)	Illinois
Rush Medical College		(1924)	Wisconsin
Indiana University		(1916)	Indiana
Keokuk Medical College		(1905)	Iowa
State University of Iowa College of Medicine		(1896)	Iowa
Harvard University		(1919)	Maine
University of Minnesota		(1903)	Minnesota
Barnes Medical College		(1907)	Missouri
St. Louis College of Physicians and Surgeons (1910) New Mexico		(1907)	Illinois,
St. Louis University		(1923)	Missouri
Miami Medical College		(1899)	Ohio
University of Pennsylvania		(1922)	Missouri
Tennessee Medical College		(1900)	Tennessee
University of Toronto		(1904)	New York

* Graduation not verified by A. M. A.

South Carolina November Examination

Dr. A. Earle Boozer, secretary, South Carolina Board of Medical Examiners, reports the oral, written and practical examination held at Columbia, Nov. 11-13, 1924. The examination covered 18 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 4 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1923)	92.5
University of Georgia		(1924)	83.5
Cornell University		(1922)	94.3
Vanderbilt University		(1921)	86

College	FAILED	Year Grad.	Per Cent.
Leonard Medical College		(1905)	75.5§
Meharry Medical College		(1923)	*

§ Failed in a certain subject.
* No grade given.

Delaware December Examination

Dr. H. W. Briggs, secretary, Medical Council of Delaware, reports the written and practical examination held at Wilmington, Dec. 9-11, 1924. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined and passed. Three candidates, including 1 osteopath, were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Temple University		(1922)	77.4
University of Jurjev, Russia		(1916)*	75

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Baltimore		(1912)	W. Virginia
University of Maryland		(1904)	Maryland

* Graduation not verified by A. M. A.

Medical Economics

THE SUPPLY OF RURAL PHYSICIANS

Following are additional letters, selected from scores that have been received, commenting on the supply of rural physicians. The points of view are varied and of great interest in seeking a solution of this economic problem.

Extinction of the Country Practitioner

To the Editor:—It may seem almost a supererogation to offer further observations on the impending calamity—the extinction of the country doctor—when so much has already been published about it; and the more especially when the Council on Medical Education and Hospitals has exhaustively (?) reviewed the conditions, found that the problem is to plug a round hole with a square peg, and the peg too sacred to be touched. But it may not be out of place to remind "all concerned" that, in a famous historical impasse, Mahomet changed his mind and went to the mountain. Even so the sacred peg (the standard course of instruction) may have to be reshaped.

And, after all, have not our modern educators (in high schools as well as in medical schools) run a little "wild" chasing the chimera of the "finished product," and forgetting that the province of the school is to impart fundamentals, inculcate a love of learning, and develop any latent faculty for constructive thought? And has not this "wildness" made the expense of education (plus the up-to-date doctor's equipment) a trifle excessive? Anyway, he must seek the large market, in which to display his wares. When we scan the records of great doctors in past generations—men who had caught the "divine fire" but had never heard of bacteria nor dreamed of a roentgen ray—we have to wonder whether, in our modern system, we are not unduly magnifying the wonders of the tangents.

H. B. YOUNG, M.D., Burlington, Iowa.

Education Too Costly

To the Editor:—I am reading the articles on "Medical Education and Medical Service" in THE JOURNAL with intense interest, for it is a personal problem with me. Without awaiting the conclusions, I wish to say that Dr. Pusey is absolutely right so far in stating the problem, and all I have read hitherto on the subject fails completely to find either the cause or the cure. Nor is this surprising, as practically all who have attacked the problem have been men long resident in the cities, who are thereby unfitted for correctly gaging the difficulties of rural practice.

My county, Crawford, in northwestern Pennsylvania, has a population of approximately 60,000, about half of which is rural according to the U. S. census classification. Serving this rural population are twenty-five doctors, all of whom, possibly with one or two exceptions, have been in practice at least twenty years. I know all but a few of these men personally, and I know that there has been no young man locating in the rural communities within the last fifteen years.

We are suffering from no shortage yet, but with the passing of this generation of doctors there will be none, from present indications, to take their place.

The problem is simply one of a matter of dollars and cents. The boy of today who is able to invest the time and money in a medical education has the time and money to establish

—or try to establish—himself in a city and will not consider the discomforts, hard work and lack of financial and scientific opportunities afforded by rural practice; and I do not blame him. The few poor boys who, by their exceptional ability, are able to secure scholarships and thus win their way through a medical course likewise will not locate in a small town for reasons the average man will admit are good.

This leaves the average young man and woman from the farm and village, who in the past have been the source of the supply of country doctors, out of the running. The present long premedical, medical and hospital training required, with the great expense necessary to complete, requires too great a sacrifice and indeed is often impossible. This I believe is the problem and solution in a nutshell.

The present-day doctor, like the present-day nurse, is overtrained for country work, and the people of the rural districts must suffer because they are not financially able to pay for their services. As for the contention that improved roads will do away with the necessity for doctors in the villages: Facts do not warrant any such conclusion, as I know to my sorrow when trying to persuade men from the city to assist me as consultants. They are increasingly loathe to drive into the country, and when they do come their fees are beyond the ability of country people to pay.

A. W. CLOUSE, M.D., Geneva, Pa.

Medical Education Requires Abbreviation

To the Editor:—I have been much interested in the series of articles on medical education. While I do not know what remedy is to be offered, I believe that Dr. Pusey is headed in the right direction. That there is a distressing dearth of physicians in small towns is apparent everywhere. Only yesterday I went 20 miles to a splendid village on the main line of one of the railroads to see a patient who had influenza. The people of this town are without the services of a physician. And at a less distance from me than this town there is another splendid village, surrounded by one of the best farming districts in Georgia, where the people are practically without the services of a physician. And such is the case throughout this section.

Since our medical schools are requiring a premedical course of two years in an accredited college and then four years in medical college, none but the sons of the well-to-do can undertake to secure a medical education. These young men, who have been raised somewhat in ease and luxury and who have had six years of college life as well as six years of city life which goes with it, are not going back to locate in a small town and do a country practice. During the last fifteen years, a dozen boys have gone from my community to medical school. Not one of them has located in a small town; some remained in Atlanta; others went to Jacksonville and Miami. There are five physicians practicing in my town; all but one are well past middle life, and when we pass out our community will be without physicians. If our boys, when they have graduated from an accredited high school, were allowed to enter medical college, take a three year course and graduate, they would not mind going back and locating in small towns. And most of them would make splendid practitioners. Then, if any of them were ambitious, they could take a postgraduate course in some of the large centers and prepare themselves as specialists.

W. A. WALKER, M.D., Cairo, Ga.

Conditions in New Mexico

To the Editor:—The letters of Dr. Pusey on medical education and medical service are so accurate and so plainly pictured that I feel bound to offer my congratulations. I am the only physician for about 3,000 people, my nearest colleague being at Gallup, 40 miles away. Those who are too far away to get treatment do without. We are a prosperous nation, but the great majority of the population is not yet wealthy enough for $10,000 physicians. If we do not shorten the medical course and do not make the entrance to medical college open to high school graduates, our population in the thinly settled districts will soon be in as bad condition as the early pioneers.

J. G. MARSHALL, M.D., Zuni, N. M.

From a Medical Teacher's Point of View

To the Editor:—I have been reading, with both interest and profit, the articles by Dr. W. A. Pusey in THE JOURNAL, and as an ex-teacher with thirty years of experience behind me, I venture to make some remarks in the hope that I may make a suggestion of value.

From 1910 to 1922 inclusive, I was professor of anatomy in the Medical College of Virginia. Formerly, nearly all their graduates, except those coming from Richmond and other cities, settled in the country. For several years, when I questioned the recent graduates, I was told that they did not wish to settle in the country because methods of instruction had taught them laboratory method of diagnosis only and they did not dare trust themselves in the country without these facilities. So much had I been impressed with the constant stress laid on these methods that when it became necessary for me to resume practice, I was deterred from it for more than a year because I thought I could not do my patients justice.

Of course, I am not arguing against laboratories. I mean only that bedside observation and deduction are lost sight of by present instructors, and the pupil, of course, can't appreciate their importance.

My remedy for the lack of doctors in the country would be to let the American Medical Association and the Association of American Medical Colleges withdraw from their attitude of command and adopt the humbler functions of advice, which is the only course wisdom would have dictated. This protective spirit pervades all American life and is producing daily increasing evils. There are two good reasons why scientific bodies should never undertake to protect the public by compulsion: (1) The public does not need the protection; (2) we are not wise enough to give it.

W. G. CHRISTIAN, M.D., Gordonsville, Va.

The Advantages of the Small College

To the Editor:—The articles in THE JOURNAL by Dr. Pusey so entirely correspond with the opinion I have held for a number of years that I am glad he has taken up the subject. An important reason for the present situation is that after four or five years of life in a metropolitan center, a young man is loath to return to the country to live, even if he has spent all his previous life in a rural community. The policy of the American Medical Association in regard to medical education has resulted in the extinguishment of the country medical school.

Before I became professor in the Harvard Medical School, I gladly took on the professorship in ophthalmology in a school in a small city. I was much impressed with the efficiency of the teaching there, even if the result was obtained in an entirely different manner than at Harvard. The school was small and permitted the use of methods impossible in a large school. Before going there I had had my attention arrested as an examiner of men competing for positions in two Boston hospitals as interns, the men from the small medical school getting appointments in a proportion greater than their numbers warranted as against other competitors from the Harvard and other large schools.

The school possessed a good sized and well run hospital, and the clinical material was ample. The hospital took care of all the acute cases arising among 2,000 students, more or less. It was the only hospital in an area with a diameter of 75 or 100 miles. All surgical and other cases requiring hospital treatment from all that region came there. It was almost a daily experience for the hospital ambulance to go from 15 to 30 or 40 miles for a patient. The result was an admirable teaching hospital with a staff not so overburdened that its members were unable to give ample teaching time to a small class of students.

Now the point of all this is that the men were well educated—got their premedical and medical education in the country and were never won away from the rural life.

The difference in expense of living four years in a small city instead of a large one was determining in the choice of school for a large number of these medical students.

MYLES STANDISH, M.D., Boston.

Social Medicine

THE WORK OF THE HEALTH ORGANIZATION OF THE LEAGUE OF NATIONS

THORVALD MADSEN, M.D.
Director, State Serum Institute, Copenhagen, and Chairman, Health Section, League of Nations
COPENHAGEN, DENMARK

The health organization of the League of Nations was provided for by Article 23 F of the original covenant of the League of Nations, empowering the league "to take steps in matters of international concern for the prevention and control of disease." It is notable that this is the first great political code to include the question of international health. Three distinct organs are included in the present health organization—the advisory council, the health committee and the health section of the secretariat. The Committee of the International Office of Hygiene at Paris, of which the United States is a member, acts as an advisory council on health, for which it is peculiarly qualified by reason of its functions and organization, as it comprises representatives from many governments who meet semiannually to discuss and propose international conventions. This council considers any matters submitted to it by the health committee of the league. It may also initiate and transmit to the committee any questions which it believes merit consideration.

The health committee of the league is composed of sixteen members, including the president of the Committee of the International Office of Hygiene at Paris, nine members chosen by that committee, and six members appointed by the council of the League of Nations on consultation with the health committee. The league council may appoint four additional members, who sit for a period of three years in the same way as other members of the committee. The committee has at present two American members, Surgeon General Cumming, who is one of the vice presidents, and Dr. Alice Hamilton, from Harvard University.

The health committee functions as an advisory body to the council and assembly of the League of Nations on all health matters, and its work is subject to their approval. It also directs the health work of the league and annually reports on it to the president of the advisory council.

The health section, forming part of the league's secretariat, is the executive body, and operates under the supervision of a director, a position occupied by Dr. Ludwik Rajchman of Poland, who has visited the United States and is well known as a bacteriologist, as head of the epidemiologic institute in Warsaw, and as a leader in international health work. The health section, as an integral part of the secretariat-general, is subject to the secretary-general of the league, and bound by the rules and policy established by the league for all its technical organizations.

The chief activities of the health organization may be described under six broad headings:

1. Measures for the control of epidemics.

2. The standardization of certain laboratory products and procedures.

3. Cooperation with other League of Nations organizations in matters that involve medical or public health questions.

4. Promotion and improvement of public health work, by the so-called interchanges of health officers between different countries, and by technical advice to various governments.

5. The collection and dissemination of epidemiologic information, including the coordination and improvement of vital statistics for international use, and epidemiologic research.

6. Miscellaneous.

EPIDEMIC CONTROL

A characteristic activity of the organization, that of epidemic control, may be illustrated by reference to the temporary epidemic commission, the object of which was to strengthen the health administration of the chain of countries in eastern Europe, which were combating the severe postwar epidemics that originated in Russia. It functioned, not directly and through its own agents, but by assistance to existing national health services, to which it furnished such material aid as it could provide, under control exercised by the commission. Therefore its work was intergovernmental, and thus differed in character from the aid granted by the Red Cross and similar private bodies, which operate directly through their own agents for the relief of specific conditions. Similarly, an arrangement was made with the Russian delegation at the Genoa conference whereby the members of the health committee, with a delegate from the central health authorities of Russia, constituted a special international commission on the epidemic campaign in Russia itself.

The epidemic commission was set up as a temporary body by the League of Nations council in May, 1920. The chief measures adopted were the establishment of quarantine stations, the equipment of hospitals, the provision of facilities for disinfection, and the supplying of food, clothing and transportation along the eastern frontier of Poland. Contributions for this work from various governments in reply to appeals from the council and assembly of the league and by donations from the League of Red Cross Societies amounted in all to a total of more than £200,000 (over $800,000).

It may be difficult for those who were not on the ground to appreciate fully the magnitude of the problem that existed. In 1921, there were notified in Russia more than half a million cases of typhus fever, and in 1922, nearly one and a half million, giving case rates, respectively, of 480 per hundred thousand and 1,084 per hundred thousand. Case rates varying from 20 to more than 160 per hundred thousand prevailed in many eastern European countries. The case incidence of relapsing fever varied, in 1921, from 17 per hundred thousand in Latvia to nearly 600 per hundred thousand in Russia, and in 1922 the rates had doubled and trebled in Poland and Russia, representing in the latter country nearly one and a half million cases, and in Poland more than 40,000. Similar impressive figures could be readily quoted for other epidemic diseases, such as cholera, smallpox, typhoid fever, dysentery and malaria in the eastern European countries during the postwar period. As a result of the activities of the governments concerned, aided and assisted materially by private agencies and by the health organization of the league, the incidence of most of these diseases has now fallen to extremely low figures; e. g., cholera prevailed to the extent of more than 200,000 notified cases in eighty-six provinces of Russia, in 1921, whereas in 1923 the disease had practically disappeared except for a very unimportant outbreak and a few scattered cases.

In the autumn of 1922, following on war conditions, which still prevailed in Asia Minor, vast numbers of refugees fled to Greece. So great was the number that it soon reached one fifth of the total population of the country. These refugees arrived in an indescribable state of poverty and physical destitution. The epidemic commission assisted the Greek government to organize a staff of approximately eighty Greek physicians, recruited medical students and inspectors, established vaccination stations in the refugee camps, and undertook other energetic measures to prevent the spread of epidemic diseases among the refugees. More than 550,000 persons, equivalent to about 60 per cent. of the total number of refugees, were vaccinated against smallpox, cholera and typhoid fever. The result of this effort was very satisfactory

as, in general, the epidemics were not so many and so severe as might have been expected.

In November, 1922, the health committee of the league, on the suggestion of the Japanese member, and with the approval of the governments concerned, sent a small commission on a tour of investigation of the chief ports of the Far East, in order to study the various methods and procedures in force in those countries for epidemic and quarantine regulations and other sanitary purposes, with the special object of preventing the spread of diseases susceptible of transmission by sea traffic.

One important conclusion presented in the report of Dr. Norman White, who was the chief of the commission, is already about to be realized; namely, the establishment of a branch office in Singapore of the epidemiologic intelligence service of the health organization of the league. Steps are in progress to bring into effect other important procedures. The question of port sanitation may be regarded as typical of all the major problems to be solved by international cooperation, and it is incidentally one that concerns the health of the entire world, as many severe epidemic diseases spread quickly, and the expense of maintaining a barrier against them is great, to every country having seaports for oversea traffic.

After the epidemic situation of eastern Europe had come well under control, the famine conditions in Russia gave rise to new movements of population on a large scale, again threatening to spread disease far and wide. Consequently, when it became apparent that the burden of defense would be a mighty one on the shoulders of the border countries, the Polish government suggested to the president of the league council that a European health conference be called as a matter of emergency, to organize measures for prevention. It was suggested to the Polish government by the council that, as the government made it possible for member countries to summon special conferences to carry out their obligations under the covenant, it would be a proper step for the Polish government itself to summon a conference. At the same time, the service of the secretariat of the league health organization was placed at the disposal of the Polish government. Subsequently, in 1922, the Warsaw health conference was called. This led at once to definite proposals promptly made effective, one of which had a permanent organizational value, as it provided for a series of conventions between the border states themselves, a number of which have already been concluded. These have for their purpose the strengthening of the sanitary defenses and the promotion of close cooperation between the respective health administrations. The conventions provide for the exchange and publication of information on disease prevalence, for prompt notification and specific measures to prevent the spread of diseases, and the like.

Further activities of the league in epidemic control have comprised the sending of a commission to the eastern Mediterranean and Black Sea ports to inquire into the international arrangements for the prevention of epidemic diseases in the Near East, which action has led to proposals for the revision of the existing Paris sanitary convention. A committee of experts from three countries was appointed to collect all available evidence on the incidence of trypanosomiasis and tuberculosis in equatorial Africa, and its findings have already been published in a formal report.

Finally, before I leave this subject of epidemic control, I may refer briefly to the work of the league's malaria commission, which recently completed an extensive tour, occupying many weeks, to a number of eastern European countries, including Jugoslavia, Greece, Bulgaria, Roumania, Russia and Italy, in all of which malaria is endemic and in some of which it prevails to a most serious extent, especially in Russia, Dalmatia and Greece.

STANDARDIZATION OF LABORATORY PRODUCTS

From the foregoing, doubtless, one will gather the impression, and quite correctly, that it is not the policy of the league to build up a large superinternational health organization, but to achieve its purposes, instead, by enlisting the help of various national health departments, by securing the temporary help of experts from them, and by acting as a clearing house and coordinating agency for them. These efforts it conducts by means of a comparatively small group of secretaries and technical experts in its home office at Geneva.

Hence, when it became apparent that a real international problem existed in the lack of standard units and methods in the production of preventive and therapeutic serums, and for certain serodiagnostic procedures, a conference of experts was convened in London in December, 1921, at which were represented the state health and serologic institutes of Austria, Belgium, France, Germany, Great Britain, Italy, Japan, Poland, Switzerland and the United States. A program was prepared of investigations to be carried out by various laboratories and for which the Institute of Copenhagen was to act as a coordinating center. Subsequently, other meetings and conferences were held in Paris and Geneva, which have led to the definite clarification of many points of difference and to valuable proposals for international uniformity. Thus the basis has been prepared for the various government institutes and laboratories the world over to adopt a uniform technic and procedure. The work of these conferences, which included many of the foremost laboratory and research workers of the world, such as Drs. McCoy and Wadsworth of the United States, included the therapeutic use of diphtheria antitoxin with regard to its dosage and the recommendation of an international unit. Comparative studies on the titration of antitetanic serum indicate that differences still exist between various standards; but, from the research now being conducted, it may be hoped international standardization is practicable, and that the problem may soon be solved. A similar result has been obtained with regard to antidysenteric serum. With further reference to the standardization of biologic products, the summoning of a conference of technical experts was made possible by reason of an international congress on physiology, which was being held in Edinburgh, in 1923. At this conference was discussed the standardization of such products as digitalis, pituitary extract, thyroid extract, the arsphenamins and insulin. The standardization of the latter has nearly reached completion; this extract has been successfully prepared in stable form, and its standardization in Toronto is now being carried out. With regard to the standardization of the arsphenamin derivatives, agreement will probably be easily reached, as the methods used in various countries differ but little.

COLLABORATION WITH OTHER ACTIVITIES

Still another group of activities of the health organization concerns its collaboration with other activities of the League of Nations; for example, with the international labor office in the study of anthrax and other industrial diseases, with the league's opium committee in an inquiry as to the quantities of opium and other dangerous drugs needed for medical and scientific consumption in each country, and with the transit committee of the league in a study of the question of minimum standards for health administration of waterways. Perhaps no work of the health organization of the league illustrates more impressively the need for an international health organization of governmental character than the effort to promote agreement and practice in sanitary administration of international waterways. When one recalls the attention this important problem has received in the past, as, for example, in the United States, one will appreciate the extent

and importance of such questions in Europe, where the many changes of international boundaries which grew out of the war have greatly multiplied the number of international waterways—an important condition, which was still further intensified by the severe epidemic conditions that prevailed in eastern Europe. The subcommittee has prepared a draft convention which would fully protect the interests of commerce and still insure efficient sanitary measures on the waterways.

INTERCHANGE OF HEALTH OFFICERS

Still another branch of the health organization work, equally important with all the foregoing, is that of the so-called interchange of public health personnel. This has for its ultimate aim the general advancement of public health administration in the various countries by promoting international cooperation and *esprit de corps*, and by preparing the way for mutual helpfulness and understanding. Late in 1923, on the invitation of Surgeon General Cumming of the United States Public Health Service, who is himself a member of the league's health committee, twenty-four sanitary officers from eighteen countries studied public health administration in its various aspects in the United States. These men, divided into three groups, spent ten weeks in observation of the work in several Northern and Southern states.

The health officers who have enjoyed such opportunities here and in European countries, some 200, have so frequently expressed their satisfaction with the practical value of this opportunity afforded them to meet their colleagues from other countries for the study of public health matters that it may be stated with finality that this feature of the league's health work has been most fully justified and has proved its value.

EPIDEMIOLOGIC INTELLIGENCE SERVICE

The broad development of a service of epidemiologic intelligence and public health statistics has been started, largely under the supervision of Dr. Sydenstricker and Dr. Eichel of the United States. Its work includes a study of simple and reliable methods for collecting information in regard to the existence and progress of infectious and epidemic diseases; a study of the comparability of vital statistics of the various countries and of the world distribution of certain diseases; a comparative study of the character and significance of observed differences in the prevalence of particular diseases in different countries as exhibited in their official statistics; the preparation and distribution of special and periodic bulletins; a survey of the public health work of the principal countries of the world, and the issue of reports on this subject, and the organizing of rapid interchange of information on epidemic diseases in cases in which prompt action may be necessary.

In the development of this comprehensive program for an epidemiologic intelligence service, a monthly epidemiologic report, containing the most recent statistics available on case incidence and mortality from the chief epidemic diseases from all countries which furnish such data to the league, is published regularly, and a comprehensive annual report in the same form is also compiled. The preparation of reports descriptive of the sanitary services in various countries has been in progress, and those on Austria, Germany and two on Holland have been printed and issued. Special reports have been published, such as those on tuberculosis and trypanosomiasis in Africa, and a very voluminous and detailed report by Dr. F. Norman White on his epidemic mission of inquiry in the Far East.

The health section is also interesting itself actively in the important problems of a uniform method for classifying joint or contributory causes of death, of the classification and statistical treatment of stillbirths, of a standard population for the adjustment of crude death rates, of age and sex classification, and of mortality statistics. It has begun the preparation of a series of handbooks setting forth descriptive accounts of the official vital statistics of various countries, including their methods of registering and compiling data. On the authority of the health committee, the health section invited seventeen men serving in important official vital statistics offices in various countries, or in universities, to serve as advisory experts on four groups or committees; namely, on joint causes, standard million, age and sex classification and stillbirths. During the last few months these men have been engaged in careful research, and there have been in circulation among them various documents and their own memoranda and critical comments. Presently, when, within the limitations of their inquiries, a basis has been found for agreement, meetings will be called of these groups for personal conference and preparation of final reports. These in due course will be submitted to the health committee for disposition and doubtless for circulation later to all official vital statistics offices in the various governments. It may be confidently hoped that this work will aid materially in providing a basis for much greater uniformity and comparability than exists today. Groups of official statisticians have been called together to meet for conference and tours of inspection of governmental statistical offices, forming not only a sort of intensive postgraduate course or seminar on the highly specialized problems of their science, but also a means whereby comparability of the data published by their various nations can be discussed at first hand.

Still another direction in which the efforts of the epidemiologic intelligence service are being developed includes the obtaining of the personal service of various vital statisticians either by their personal visits to the central office in Geneva to assist in its work with technical advice, or by preparing for it special reports. There have recently been submitted, for example, preliminary reports as to the statistical evidence on the occurrence of cerebrospinal meningitis in certain countries, on the prevalence of scarlet fever and diphtheria, on Asiatic cholera, and on the comparability of statistics. Owing to the very marked differences that may be discerned in the statistics of cancer as published officially by Holland, England and Italy, the health committee of the league authorized a subcommittee to make a special study of this subject. This study has been in progress for a number of months, the work being done by experts detailed for this task in each of the three countries.

CONCLUSION

I hope that from this brief account it will be apparent that there exist many major public health problems for the solution of which there should function an international agency of governmental character which may serve to unify and coordinate national efforts and act as a clearing house and international secretariat; and that, in so functioning, success is possible without the establishment of a large and expensive staff and equipment and without the employment of supergovernmental power. Indeed, one of the unique features of the league health organization work is that it has thus far been successfully conducted with a staff of only twenty-eight employees, including both technical and clerical help in the office and field, aided by the willing and voluntary cooperation of the various governments and national public health services, and by the part-time help of experts employed for temporary periods. Special appreciation is felt for the assistance given by the International Health Board of the Rockefeller Foundation, not only for invaluable help of a material kind but also for the moral support implied in the grants of money. The participation of the United States in the work of the health organization has likewise been notable in the personnel of the health committee and of the health section, among which there have been found at all times men and women of American nationality.

Book Notices

LECTURES ON PATHOLOGY. (Delivered in the United States, 1924.) By Ludwig Aschoff, M.D., Professor of Pathologic Anatomy, University of Freiburg. Cloth. Price, $5. Pp. 365, with 35 illustrations. New York: Paul B. Hoeber, Inc., 1924.

With a world-wide reputation as a teacher of pathology, and author of a textbook on this subject of the highest value, Professor Aschoff made a tour in 1924, lecturing in the United States from coast to coast. Those who were so fortunate as to hear some of these lectures realize how richly deserved is his reputation as a teacher. It is fortunate that these lectures have been collected in a single volume where they will be available to the many who were unable to hear him in person. There are fourteen lectures, on: the reticulo-endothelial system; the pathogenesis of human pulmonary consumption; the concept of inflammation; pathologic fatty changes; normal and pathologic morphology of the suprarenals; atherosclerosis; ovulation and menstruation; orthology and pathology of the extrahepatic bile passages; the origin of gallstones; the site of formation of bile pigment; thrombosis; relation of mucosal erosions to the development of ulcer of the stomach; the goiter problem, especially the goiter of puberty—a morphologic study, and renal secretion and renal diseases. As will be seen, they cover an extremely wide range; but each is an excellent summary of much of our knowledge of the topic covered, including the author's own contributions. Although primarily a pathologic anatomist, it will be seen that Professor Aschoff has a broad view of his subject, not limiting his studies or his considerations entirely to the morphologic aspect. The clear, systematic presentation of each lecture adds greatly to their worth, and every lecture contains information of value not only to pathologists, but also to students in other fields of medicine.

PRACTICAL SURGERY ILLUSTRATED. By Victor Pauchet. Translated by F. R. B. Atkinson, M.D., C.M. With an Introduction by Sir Charles Gordon-Watson, C.M.G., F.R.C.S., Surgeon and Joint Lecturer in Surgery, St. Bartholomew's Hospital. In two volumes. Boards. Price, 18 shillings 6 pence, per volume. Pp., volume 1, 293, with 217 illustrations; volume 2, 252, with 199 illustrations. London: Ernest Benn Limited, 1924.

Few books, whether in the field of science or of fiction, so strongly bear the stamp of individuality as these two volumes. Pauchet describes various operations as he performs them, chiefly by means of remarkably clear and easily understood illustrations. Indeed, these are so vivid that the text is practically superfluous. Those operations which interest the author most are discussed at great length; others which fire his imagination less are allotted fewer pages. The arrangement of the chapters might seem without rhyme or reason to the casual observer, as neither anatomic nor alphabetical nor any other system of classification seems to have been followed. The radical cure of hernia is the first operation listed because "the commonest of all set operations takes pride of first place in this volume." This unique text reveals Pauchet as a brilliant surgeon and an original thinker. The surgeon reading these volumes will profit as he might from a visit to Pauchet's clinic and at the same time lose little of the enthusiatic personality of the man.

ANATOMIE DES MENSCHEN. Ein Lehrbuch für Studierende und Aerzte. Zweiter Band. Von Hermann Braus, O. ö Professor an der Universität, Würzburg. Cloth. Price, $4.30. Pp. 697, with 329 illustrations. Berlin: Julius Springer, 1924.

This is the second of three volumes announced. The first, already reviewed, contained an introduction on general anatomy and treated of the apparatus of locomotion (bones, joints and muscles); this volume treats of the viscera, including the heart. As in the first volume, origins, insertions and variations of muscles are set forth in a table, as are also the names (B N A) used in each part considered; the names are followed by brief explanatory definitions. The text is devoted to an account of gross and minute structure, development, evolution and mode of working. It is written from the standpoint of a general morphologist whose view ranges over the entire animal kingdom, and whose conceptions of architecture are correspondingly broad and true. The expositions of evolutionary and developmental history are especially good, and the reader is helped greatly in their apprehension by illustrations, in many of which three dimensions are depicted and parts developmentally separate are distinguished by different colors. The mechanics of swallowing, breathing and blood circulation are presented much more fully than in most textbooks of anatomy, and add much to the interest and value of the work. Most of the illustrations are new. All are well planned and repay careful study. The author has been inclined to pass over obvious things which any careful student must see for himself, and has directed his efforts toward making clear general principles which students often fail to grasp, and the fundamental facts of evolution, development and function, which are indispensable for an understanding of any structure. In this he succeeds admirably; and, while hurried first-year students may select some other text, no teacher of anatomy and no thoughtful student or physician can afford to be without this. The publication of the third and concluding volume is announced for the near future.

LES TROUBLES FONCTIONNELS DU CŒUR. Sémiologie et thérapeutique. Par R. Lutembacher. Paper. Price, 45 francs. Pp. 320, with 297 illustrations. Paris: Masson et Cie, 1924.

The author in his first chapter briefly reviews the anatomy and physiology of the heart. He then discusses the ordinary methods of physical examination and the use of instruments of precision, such as the sphygmomanometer, the polygraph, the electrocardiograph and the roentgen ray. Under the caption of functional disturbances he deals with the various types of arrhythmia, with cardiac insufficiency and with angina pectoris. A brief consideration of methods of testing the heart as to the functioning capacity of its nervous, conducting and muscular systems is followed by a long chapter devoted to a pharmacologic study of cardiac drugs, and a shorter one relating to the treatment of the functional troubles of the heart. Criticism might easily be made as to the wisdom of including certain topics in a book with the given title, while omitting others. One might question, also, whether some topics, such as the pharmacologic study, had not been allotted more than their due space at the expense of others more important to the practitioner. On the whole, however, while the physician will not find in the volume a complete textbook on diseases of the heart, he will find that the topics included are treated in a clear and reasonably satisfactory manner.

THE CARE, CURE AND EDUCATION OF THE CRIPPLED CHILD. A Study of American Social and Professional Facilities to Care for, Cure and Educate Crippled Children. A Complete Bibliography of Literature Bearing on this Subject; and A Complete Directory of Institutions and Agencies Engaged in This Work. By Henry Edward Abt, Director, Bureau of Information of the International Society for Crippled Children. Cloth. Price, $3.50. Pp. 222, with illustrations. Elyria, Ohio: The International Society for Crippled Children, 1924.

A directory of the special facilities for the treatment, education and custodial care of crippled children is the most valuable feature of this book. These agencies are listed by state and city, with comments on their equipment, field and needs. The book contains statistical data on the number of crippled persons in the United States, with a survey of the literature on cripples and a rapidly drawn picture of the development of the feeling of social responsibility for the care of cripples.

NERVENKRANKHEITEN. Die wichtigsten Kapitel für die Praxis. Von Prof. Dr. Hans Curschmann. Klinische Lehrkurse der Münchener medizinischen Wochenschrift. Band 2. Paper. Price, $1.10. Pp. 228. München: J. F. Lehmanns, 1924.

This is intended for the busy general practitioner to whom neurology always has been a stepchild and who has neither the time nor the inclination to make use of the more complete textbooks. Only the more important diseases are taken up, and they are discussed in a clear and practical manner. There are no illustrations, and only seven pages are given to the all important general principles underlying the diagnosis of nervous disorders The author evidently considers it a useless task to try to teach the general practitioner to reason for himself and is satisfied to give him good, predigested and, on the whole, well selected pabulum.

Medicolegal

Forgetfulness and Capacity to Make Wills

(In re Dotterweich's Will (N. Y.), 205 N. Y. Supp. 580)

The Supreme Court of New York, Appellate Division, Fourth Department, in reversing a decree that denied probate to a will which Mrs. Dotterweich executed in February, 1919, says that she was at that time between 80 and 81 years of age, and lived two years and four months after the will was made. The contestants laid stress on the fact that between August and October, 1920, Mrs. Dotterweich spoke of calling on a neighbor, who had died some time previously. That was admissible evidence on the question of testamentary capacity; but it was not a surprising or unusual incident in view of the age of the testatrix. In any event, it occurred so long after the will was made that it could hardly be said that any infirmity of mind indicated by that incident related back and entered into the execution of the will. Aged people are apt to be forgetful and live in the past; but that does not make them of unsound mind; it certainly would justify no such inference in this case, in view of the mass of testimony that the testatrix attended to her business in her usual way up to within a short time before her death. If, when she made this will, she had capacity to comprehend the nature of the transaction, to recall her property and to know of what it consisted, and if she knew and understood the relation she bore to those naturally the objects of her bounty, then she was capable of making a valid will, even though she was of advanced age. Why should a jury set aside this will, and sustain every one of the contestants' propositions, in the face of overwhelming evidence that the will was duly executed, that the testatrix was of sound mind, and that the will was not the result of undue influence? The answer is found in the desire of jurors in contested will cases to make a will for a decedent as they think it ought to have been made, without regard to her absolute right under the law to make such testamentary disposition of her property as she saw fit, provided she was of sound mind and acted of her own volition.

Inference of Negligence in Repair of Perineum

(Stratton v. Boreum (Mo.), 263 S. W. R. 676)

The Kansas City (Mo.) Court of Appeals says that the defendant performed on the plaintiff, a married woman who was suffering from a lacerated perineum, Emmett's modified operation, which was described by experts as a standard method. While he was denuding the tissues he encountered a blind fistula, put a purse-string suture around it, and pushed it into the rectum. He then proceeded with the operation, raising the floor of the vagina and taking the necessary stitches. A few days later infection set in, where the blind fistula was found, and caused a complete fistula, which did not respond to treatment, while an attempt to remedy the trouble by another operation was unsuccessful. In the plaintiff's petition it was alleged that through the defendant's negligence and unskilfulness, the rectum or colon of the plaintiff was torn, cut, lacerated or punctured, causing a hole or opening between the rectum and vagina, or between the rectum and just outside and below the vagina, which hole had since remained open; that the defendant had negligently and unskilfully operated for the purpose of healing the opening, and had failed, and had negligently and unskilfully treated the opening. The plaintiff testified that the first suffering that she experienced after coming from under the anesthetic was from severe pains and misery in the rectum, which continued until the fourth day thereafter, when the painful pulling in the rectum gave way; that in a short time an enema was given, and she noticed that the water was passing through the opening caused by the breaking loose of the stitches between the rectum and the vagina; that the movements from the bowels came through the opening, and she had no control over the gas; and that this condition had continued up to the time of the trial. The plaintiff further testified that the defendant admitted that the condition was his fault. There was also testimony by an expert to the effect that in an ordinary case, cutting or stitching through, as alleged by the plaintiff, would be a matter of carelessness. The further testimony of the plaintiff bearing directly on this point was to the effect that just before the second operation, when the defendant was asked by the plaintiff the cause of her condition, he replied: "I don't know. I can't account for it, unless I stitched into a blind fistula and didn't know it." The court thinks this evidence afforded a basis from which the jury reasonably might infer that the defendant was negligent; that there was no error in submitting the case to the jury.

It was urged that the trial court erred in refusing to sustain the defendant's instructions in the nature of demurrers offered at the close of the plaintiff's case, and again at the close of the defendant's evidence, and at the close of all the evidence. In passing on the ruling of the court on the defendant's demurrer to the plaintiff's evidence, the evidence of the defendant should be disregarded and only that tending to make a prima facie case for the plaintiff considered. It was insisted that the plaintiff was not entitled to go to the jury without direct and positive evidence of the defendant's negligence. Such is not the rule. A demurrer to evidence is sustainable only in the absence of material testimony or reasonable inference.

The plaintiff obtained a judgment for $5,000 damages, but that is reversed and the cause remanded for a new trial on account of remarks made by the court throughout the trial, which were strongly prejudicial to the defendant.

Food Eaten at Restaurant Held Sold with Warranty

(Temple v. Keeler (N. Y.), 144 N. E. R. 635)

The Court of Appeals of New York, in affirming a judgment for damages in favor of the plaintiff, who, it was alleged, was made ill by eating unwholesome fish in the defendant's restaurant, says that this court had not before held that the owner of a restaurant sells the food which he provides for his guests. But now the court holds that, when a customer enters a restaurant, eats, and pays for food, delivered to him on his order, the transaction is the purchase of goods. The court holds also that under such circumstances the buyer does by implication make known to the vendor the particular purpose for which the article is required, and, when the buyer may assume that the vendor has had an opportunity to examine the article sold, it appears conclusively that he relies on the latter's skill or judgment. Consequently there is an implied warranty that the food is reasonably fit for consumption. It has been said that a restaurant owner does not sell food but renders a service—that a seat is furnished, the services of a waiter and cook, the use of plates and silver. It has also been said that in a restaurant, while the customer may consume such portion of his order as he desires, he may not carry away with him the remainder. But the consequences sought to be drawn from this proposition do not follow. Even if this contention be true, the transaction may still be a qualified sale—a sale of what is actually used.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, April 9-11. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

Arizona Medical Association, Bisbee, April 14-18. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Central Section of the American Roentgen Ray Society, Detroit, Feb. 19-21. Dr. B. R. Kirklin, Western Reserve Life Bldg., Muncie, Ind., President.

Middle Section of American Laryngological, Rhinological and Otological Society, Lafayette, Ind., Feb. 23. Dr. George F. Keiper, 14 North 6th Street, Lafayette, Ind., Chairman.

Tennessee State Medical Association, Nashville, April 14-16. Dr. J. F. Gallagher, Jackson Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

34:427-505 (Jan. 15) 1925

Structure and Staining Reactions of Reissner's Fiber Apparatus, Particularly Subcommissural Organ. H. Jordan, Burlington, Vt.—p. 427.
Selective Elimination of Ova in Adult Ovary. E. Allen, W. B. Kountz and B. P. Pruscia, St. Louis.—p. 445.
Experimental and Morphologic Study of Parathyroid Glands of Cat. J. S. Nicholas, Pittsburgh, and W. W. Swingle, New Haven, Conn.—p. 469.

American Journal of Ophthalmology, Chicago

8:1-96 (Jan.) 1925

Development of Connective Tissue Framework of Human Optic Nerve with Especial Reference to Lamina Cribrosa. H. C. Hudson, Houston, Texas.—p. 1.
Outstanding Beam of Aqueous Fluid. B. Graves, London, England.—p. 8.
Marginal Dystrophy of Cornea: Furrow Keratitis. S. R. Gifford, Omaha.—p. 16.
Etiology of Glaucoma. Operations for Relief of Tension. H. D. Bruns, New Orleans.—p. 23.
Ocular Phenomena in Acromegaly. W. I. Lillie, Rochester, Minn.—p. 32.
Tonometric Study of Normal and Abnormal Rabbit Eyes. M. G. Bergeim, Madison, Wis.—p. 40.
Value of Fusion Training and Methods for Its Development. D. W. Wells, Boston.—p. 46.
Discission of Lens After Twenty-Fifth Year. B. O'Connor, Oakland, Calif.—p. 54.
Iritis with Unusual Focus of Infection (Osteomyelitis). W. E. Bruner, Cleveland.—p. 56.
Range for Refraction Embodying New Features. S. L. Olsho, Philadelphia.—p. 57.
Syphiloma Complicating After-Treatment of Cataract Extraction. E. E. Blauw, Buffalo.—p. 59.
Prism Scotometer. J. N. Evans, Brooklyn.—p. 60.

American Journal of Physiology, Baltimore

71:1-227 (Dec.) 1924

*Alleged Influence of Sympathetic Innervation on Warmth Production in Skeletal Muscles. F. C. Newton, Berne, Switzerland.—p. 1.
*Quantitative Measurements of Excitability of Central Nervous System After Thyroidectomy and Thymectomy. F. C. Newton, Berne, Switzerland.—p. 12.
Paradoxical Cardiac Inhibition Following Lesions of Proprioceptive Paths. J. Byrne, New York.—p. 19.
Clasping Reflex in Amphibia. T. Koppanyi and J. F. Pearcy, Chicago.—p. 34.
*Secretin. VI. Influence on Antibodies of Blood: Agglutinin. A. W. Downs and N. B. Eddy, Edmonton, Canada.—p. 40.
*Secretin. VII. Influence on Antibodies of Blood: Complement. A. W. Downs, N. B. Eddy and R. M. Shaw, Edmonton, Canada.—p. 44.
*Secretin. VIII. Influence on Antibodies of Blood: Hemolytic Amboceptor. A. W. Downs, R. M. Shaw and N. B. Eddy, Edmonton, Canada.—p. 46.
*Effect of Environmental Temperature on Metabolism. S. Morgulis, Omaha.—p. 49.
Metabolism of Cattle During Standing and Lying. J. A. Prins and M. Krist.—p. 60.
Visceromotor Reflexes. II. F. R. Miller, London, Canada.—p. 84.
Circulatory Response of Man to Anoxemia. E. C. Schneider and D. Truesdall, Long Island, N. Y.—p. 90.
*Effect of Exercise on Distribution of Corpuscles in Blood Stream. B. Isaacs and B. Gordon, Boston.—p. 106.
Effect of Respiration on Venous Pulse as Studied by Electropolygraph. R. A. Waud, London, Canada.—p. 112.
Vaccine Fever in Rabbits Rendered Poikilothermous by Cervical Cord Transection. R. W. Keeton, Chicago.—p. 120.
Physiologic Maximum of Blood Pressure in Cat. H. C. Coombs, New York.—p. 131.
Relation of Pyramidal Tract to Spinal Shock. G. P. McCough, Philadelphia.—p. 137.
*Conditions of Activity in Endocrine Glands. XIV. Effects of Muscle Metabolites on Suprarenal Secretion. W. B. Cannon, J. R. Linton and R. R. Linton, Boston.—p. 153.
Relation Between Stimulating Efficiency of Intermittent Light and Length of Light and Dark Periods. S. O. Mast and W. L. Dolley, Jr., Baltimore.—p. 163.
*Action of Minute Amounts of Barium Chlorid on Kidney. W. L. Mendenhall, E. M. Taylor and A. N. Richards, Philadelphia.—p. 174.
*Glomerular Circulation in Frog's Kidney; Action of Epinephrin and Various Other Substances on It. A. N. Richards and C. F. Schmidt, Philadelphia.—p. 178.
*Composition of Glomerular Urine; Reabsorption in Renal Tubules. J. T. Wearn and A. N. Richards, Philadelphia.—p. 209.

Influence of Sympathetic Innervation on Warmth Production in Muscle.—A method was devised by Newton whereby the whole lumbar and pelvic sympathetic chain on one side in the rabbit was extirpated without damage to adjacent motor innervation. This extirpation had no observable influence on either the motility or tonus of the muscles on the side of operation; and puncture of the thermal center in the corpus striatum led to a rise of temperature observed in the rectum and in both extremities, without showing a larger or more rapid rise on the normal side, if anything a somewhat greater rise in some cases on the side without sympathetic innervation. These facts indicate that sympathetic innervation has no influence on heat production in skeletal muscles, and are also opposed to the belief that there are such nerves having an influence on warmth regulation which reach the periphery by way of the arteries.

Measuring Excitability of Nervous System After Thyroidectomy.—A method is presented by Newton whereby the respiratory movements of the rabbit under various temperatures may be accurately and graphically demonstrated. After total extirpation of the thyroid the susceptibility of the respiratory center to rise of temperature becomes markedly diminished. This decrease is still further increased when total extirpation of the thymus is added to that of the thyroid. Intravenous administration of a small dose of morphin, while reducing the increase in respiratory rate to rising temperature in all three cases, still does not obliterate the essential differences observed in animals who are drug-free. Further, there is a striking resemblance between the reaction of a normal animal to whom such a dose has been given and an animal without thyroid and thymus.

Influence of Secretin on Agglutinin.—Downs and Eddy found that the agglutinating power of the blood of rabbits receiving secretin averaged higher than that of rabbits that were not receiving secretin. The average agglutinating power of the secretin rabbits was 53.00 per cent. higher at the end of the first week than the control rabbits, 16.21 per cent. higher at the end of the second week and 17.49 per cent. higher at the end of the third week.

Influence of Secretin on Complement.—Daily subcutaneous administration of a secretin preparation for three weeks did not affect the complement content of the blood of the rabbits used.

Influence of Secretin on Hemolytic Amboceptor.—In the blood of the rabbits receiving secretin the hemolytic power against washed sheep's corpuscles increased on the average approximately 100 times. In the blood of the control rabbits the hemolytic power increased 800 times.

Effect of Environmental Temperature on Metabolism.—The results of Morgulis' study as a whole show that changes in temperature do not produce an alteration of metabolic activity of the tissue cells except in so far as either the low or the high temperature, through peripheral stimulation, may cause restlessness on the part of the subject or induce a state of heightened muscular tone, often without any other gross manifestations. The experimental results presented by Morgulis, including a study of the carbon dioxid production and oxygen consumption under various temperatures, aided by a graphic study of the general behavior of the animals and the cardiac response under these different conditions, make it clear that there is no special mechanism of chemical regulation of metabolism. The metabolic changes produced under different temperatures are either the result of shivering and restlessness or, in the absence of such gross evidences of lack of relaxation on the part of the subject, they are due to differences in muscular tonicity produced reflexly through cutaneous stimulation.

Effect of Exercise on Blood Corpuscles.—All of seventeen individuals running a marathon race of 26½ miles in from two and one-half to three hours, showed a relative and absolute increase in the number of their polymorphonuclear neutrophil leukocytes and blood platelets in the peripheral circulation. The character of the red cells and the relative percentage of their immature forms remained practically

unchanged in the peripheral circulation during the exercise. There was no definite evidence of newly formed or immature cellular elements (with the possible exception of the blood platelets) being added to the circulation during the period of exercise. The change in the number of white cells and blood platelets is probably the result of a more thorough mixing of the blood of the internal and peripheral blood vessels, with a redistribution of its elements. An increased number of young red cells and, in some cases, blood platelets and white cells in the blood of the athletes was observed before the race. This suggests a possible relationship between the previous period of training and the slightly lowered threshold of blood cell delivery.

Effects of Muscle Metabolites on Suprarenal Secretion.—Johansson's observation that the denervated heart is accelerated when muscle metabolites are set free in the circulation is confirmed by Cannon and the Lintons. The acceleration fails to occur if the suprarenals are rendered inactive; the inference is drawn, therefore, that the effect is mediated by these glands. Reasons are presented for concluding that the muscle metabolites have no direct effect on the heart rate, but act by stimulating the nervous control of suprarenal secretion.

Action of Barium on Kidney.—In exceptional experiments, minute amounts of barium chlorid introduced into the circulation of an eviscerated rabbit caused increase in arterial pressure, in kidney volume and in urine flow, together with decrease in renal blood flow. Constriction of the efferent glomerular arteriole is regarded as the most probable explanation of this coincidence.

Glomerular Circulation in Kidney.—The observations made by Richards and Schmidt provide evidence on which to reintroduce into considerations of renal physiology the conception held by Hermann and by Ludwig that the extent of filtration surface in the kidney is variable and a factor which must be of major importance in the adjustment of renal function to excretory requirement.

Dyes Eliminated by Glomerulus.—Wearn found that indigocarmin, phenolsulphonephthalein and methylene blue are eliminated from the frog's circulation by way of the glomerulus.

Archives of Dermatology and Syphilology, Chicago

2: 1-148 (Jan.) 1925

*Leprosy in New York City. J. A. Fordyce and F. Wise, New York.—p. 1.
Amebiasis Cutis: Survey of Literature. L. F. Heimburger, Tsinan, China.—p. 49.
Type III Sarcoid Associated with Infection of Tonsils and Gums. E. R. Whitmore, Washington, D. C.—p. 56.
*Mycetoma: Four Cases. E. D. Lovejoy and R. W. Hammack, Los Angeles.—p. 71.
Trichostasis Spinulosa or "Pinselhaar." J. H. Mitchell, Chicago.—p. 80.
Kidner Complement Fixation as Specific Test for Syphilis. II. C. E. Reyner and F. W. Hartman, Detroit.—p. 91.

Leprosy in New York.—The clinical history and epidemiology of leprosy are discussed by Fordyce and Wise, and forty-seven cases are analyzed. In each case the disease apparently developed after prolonged residence in this country. Only three of the patients were native born Americans.

Mycetoma.—Four cases are cited by Lovejoy and Hammack. While mycetoma has been found in various parts of the United States, it is more common in the Southwest. It occurs most often in Mexicans, probably because of habits and occupation. There is comparatively little variation in the clinical and pathologic picture, in spite of the fact that the causative fungi vary greatly.

Archives of Neurology and Psychiatry, Chicago

13: 1-154 (Jan.) 1925

*Hereditary and Familial Factors in Development of Psychoses. A. M. Barrett, Ann Arbor, Mich.—p. 1.
Cellular Basis of Inheritance. C. W. Metz, Cold Spring Harbor, N. Y.—p. 26.
*Histopathologic Findings in Case of Friedreich's Ataxia. N. W. Winkelman, Philadelphia and J. L. Eckel, Buffalo.—p. 37.
Pathologic Processes in Extraneural Systems of Body in Various Hereditary and Familial Nervous and Mental Diseases. N. D. C. Lewis, Washington, D. C.—p. 47.
Hypophysial Pressure Symptoms Due to Hydrocephalus Causing Cystlike Distention of Third Ventricle. J. H. W. Rhein, Philadelphia.—p. 71.
*Trypars amide in Syphilis of Nervous System. S. I. Schwab and L. D. Cady, St. Louis.—p. 80.
*Results of Administration of Trypars amide in Syphilitic Disease of Nervous System and in Certain Other Diseases of Nonsyphilitic Character. F. Kennedy and T. K. Davis, New York.—p. 86.
*Pathology of Hereditary and Familial Nervous and Mental Diseases. S. T. Orton, Iowa City.—p. 96.

Hereditary and Familial Factors Causing Psychoses.—Barrett's review of the literature shows that hereditary factors play a considerable rôle in the psychoses. For instance, in 3,515 cases of psychoses the percentage of total hereditary factors was 77; in general paralysis it was 67.7; in epilepsy, 81.26, and in manic-depressive insanity, 84.13. The father transmits to the offspring in 39.3 and the mother in 60.7 per cent. The entire subject is reviewed fully by Barrett.

Pathology of Friedreich's Ataxia.—A case is described by Winkelman and Eckel that was studied for thirty-four years in a hospital. The diagnosis was Friedreich's ataxia. The picture and the course were typical, with the additional symptom of atrophy of the distal muscles of the extremities. At necropsy, an abnormally small cerebellum and cord were found. Histologically, the cerebellum showed a degenerative process still progressing, while the spinal cord showed a secondary tract degeneration, especially in the posterolateral regions. The ganglion cells of the cortex, cerebellum and spinal cord were in various stages of degeneration, cell atrophy being the most common finding. Neither clinically nor pathologically is this case in keeping with the doctrines laid down by Marie and his co-workers that in cases in which there is a small cerebellum the posterior part of the cord is little affected, if at all. The histologic study of this case indicated that there has been a gradual and progressive death of one neuron after another. It is not an inflammatory but a degenerative process, with glial replacement, and fits in with Gowers' hypothesis of an abiotrophy. It is worth noting that the vascular sclerosis was out of proportion to the age of the patient, a fact which other observers have also recorded.

Value of Trypars amide in Neurosyphilis.—The experience of Schwab and Cady seems to indicate that trypars amide in the treatment of neurosyphilis combined with arsphenamin and some of its derivatives and mercury offers, for the present at least, a more hopeful outlook for these cases than any other drug or combination of drugs that has been tried. It presents a more advanced type of treatment than intraspinal medication or the use of any other method.

Value of Trypars amide.—Kennedy and Davis are of the opinion that, in general, the benefits from the drug exceed the untoward effects, since it appears possible and easy to prevent optic nerve changes that are organically permanent, by proper control of dosage. Three grams of the drug is a maximum dose, in their opinion, and they believe that it would be better to have 2 gm. established as the average full-sized dose rather than 3 gm. Injections should be given at intervals of at least seven days. Leakage into the tissues does not cause cellulitis. It is practical to give injections in series of eight consecutive weekly treatments followed by a brief rest period of two weeks. However, there is no definite contraindication to having the second series immediately follow the first. Two or even three series are warranted in cases displaying beneficial results. Improvement, if it occurs at all, almost always occurs early. Mercury should be used in conjunction with trypars amide. Unconditional marketing of the drug seems justifiable if explicit directions regarding dosage and intervals are clearly stated on every bottle, and if the dangerous possibilities are sufficiently explained. The drug should not be used on patients when ophthalmoscopic examinations cannot be carried out regularly.

Pathology of Hereditary Nervous Diseases.—Orton reviews the pathology of the chronic heredodegenerations, the lenticular group, the chronic choreas, amaurotic family idiocy and defects. An explanation of "normal looking" brains in strikingly defective cases is suggested on the ground of proportionate overgrowth of the supportive tissues with lack of

either quantitative or qualitative development of the nerve cells or their interconnections.

Boston Medical and Surgical Journal

2: 103-150 (Jan. 15) 1925

*Epilepsy and Hysteria. J. F. O'Brien, Taunton, Mass.—p. 103.
New Purgative: Oil of "Castor Oil Fish," Ruvettus. E. W. Gudger, New York City.—p. 107.
Simplified and Trustworthy Means of Measuring Stature. W. R. Miles and H. F. Root, Boston.—p. 111.

Epilepsy and Hysteria.—As the result of a study of 100 cases, O'Brien has found that many exciting factors take part in producing convulsive seizures and unconscious states, and that a physician treating such conditions should not be careless as to details in his examination of the patient. Fright and craniocerebral trauma are the predominant, exciting causes, but many convulsions were apparently provoked by infection and inoculation, yet only in persons who were constitutionally defective. Phenobarbital and bromids, by slowing up nerve function, render the patient less convulsive and more hopeful, and in a small number of cases have furnished an almost complete recovery. The dose of these drugs has to vary with the reactivity of the individual.

Bulletin of Society of Medical History of Chicago

3: 279-337 (Dec.) 1924

Edward Mead, Pioneer Neuropsychiatrist of Illinois. F. H. Weaver, Chicago.—p. 279.
Professor Neuburger and His Institute for History of Medicine. A. Levinson, Chicago.—p. 293.
Physicians of Fiction. 1. Doctor Sampson of Charles Reade's "Hard Cash." G. Blumer, New Haven, Conn.—p. 299.
John Martin Kalberlahn. K. Gjerset and L. Hektoen, Chicago.—p. 308.
Health Legislation in Colonial Connecticut. C. E. A. Winslow, New Haven, Conn.—p. 317.

Endocrinology, Los Angeles

8: 719-878 (Nov.) 1924

Relation Between Clinical and Experimental Endocrinology. W. Timme, New York.—p. 719.
*Use of Iodin in Exophthalmic Goiter. W. M. Boothby, Rochester, Minn. p. 725.
*Use of Iodin in Exophthalmic Goiter. J. M. Read, San Francisco.—p. 746.
Secondary Sex Characteristics and Interstitial Gland. N. Guermaghigh, Gand.—p. 757.
*Effects of Mammary Gland Substance on Uterine Function. P. H. Charlton and E. Rickey, Columbus, Ohio.—p. 762.
*Effect of Feeding Mammary Gland Substance on Oestrus Cycle of Rat. P. H. Charlton and M. O. Lee, Columbus, Ohio.—p. 770.
Parathyroid of White Rat. M. M. Hoskins, Little Rock, Ark.—p. 777.
Hemosiderosis: Case of "Bronze Diabetes" with Endocrine Disturbances (Sexual Regression). F. L. Marsh, Ann Arbor, Mich.—p. 795.
Metabolism of Galactose. II. Blood Sugar Curves. A. W. Rowe and J. Chandler, Boston.—p. 803.
*Is Tadpole Test for Thyroid Valid? W. W. Swingle, Cold Spring Harbor, N. Y.—p. 832.

Iodin in Exophthalmic Goiter.—It is again emphasized by Boothby that iodin administered to patients with adenomatous goiter without hyperthyroidism often initiates a syndrome comprehended in the term "adenomatous goiter with hyperthyroidism." Iodin, administered to patients with exophthalmic goiter, usually reduces the basal metabolic rate, and practically always causes the typical and characteristic nervous and gastro-intestinal symptoms to disappear. Iodin, when properly administered, will prevent death from the acute postoperative exophthalmic goiter crisis. Iodin, with a few exceptions, should be advised only as a temporary therapeutic measure in the treatment of exophthalmic goiter to bring the patient into a safe condition for partial thyroidectomy.

Iodin in Exophthalmic Goiter.—Six cases are cited by Read which illustrate the effects obtained from compound solution of iodin administered to thyrotoxic patients, half of whom had previously been operated on. Some of the results are so closely associated chronologically with the giving of iodin that a causal relationship may be assumed. Its effect on those signs and symptoms which seem to be caused by toxemia is most marked, making iodin a valuable addition to thyroid therapy. No patient in this series of twenty-six cases was made worse by it; eleven showed marked improvement; in eight the improvement was moderate, and in the remaining six the change was slight or negligible. There was one fatality in the group. It concerned a patient who came under observation with an auricular fibrillation and a basal metabolic rate of plus 40 per cent. She showed some improvement under rest, digitalis and iodin, and the metabolic rate dropped to plus 12 per cent. She declined to return to the hospital when advised to do so, showed signs of mental aberration, and died suddenly with signs of acute cardiac dilatation. Compound solution of iodin was tried as a substitute for thyroid extract in a case of postoperative myxedema, and a mild rash developed. This promptly disappeared when the iodin was stopped and the patient put again on thyroid extract, which she had been taking for two years.

Effect of Mammary Gland Substance on Uterine Function.—Charlton and Rickey believe, as a result of their observations on seventy-nine subjects, that the effect on ovarian activity, and thus on uterine function, of the feeding of mammary gland substance, as evidenced by changes in the character of the menstrual flow in patients with normal and abnormal menstrual histories, if it exists, is not constant. Nor is it of practical value from a clinical standpoint in abnormal subjects when the abnormality is supposedly due to ovarian hyperactivity, since the results obtained were neither constant nor sufficient in amount to warrant its use.

Effect of Mammary Gland Substance on Estrual Cycle of Rat.—The supposition that the mammary glands produce a hormone is based primarily on the observation that disturbances in the estrum or menstrual cycle coincide with periods of mammary activity. The therapeutic use of mammary gland substance postulates an artificial augmentation of such a circulating hormone. The results reported by Charlton and Lee indicate that no such effect can be secured. The results throw further doubt on the theory of a mammary hormone, although they do not conclusively disprove it. The possibility remains open that the hypothetic hormone may be destroyed in the manufacture of the gland product, or that the hormone is destroyed by the digestive juices when administered by mouth.

Validity of Tadpole Test for Thyroid.—It is evident from the results obtained by Swingle that the use of tadpoles for testing the physiologic activity of thyroid preparations is unsatisfactory. Thyroid samples, giving a very positive test when fed to thyroidectomized tadpoles, might be totally inert when fed to mammals, so far as the metabolic rate and the alleviation of myxedema and cretinism are concerned.

Georgia Medical Association Journal, Atlanta

13: 515-558 (Dec.) 1924

Cause and Treatment of Vernal Conjunctivitis. A. G. Fort, Atlanta.—p. 515.
Tuberculosis of Eye. F. B. Blackmar, Columbus.—p. 517.
Differentiation of Cardiac Arhythmia. E. D. Shanks, Atlanta.—p. 521.
Diagnosis of Pulmonary Tuberculosis. J. A. Thrash, Columbus.—p. 526.
Acute Pancreatitis Following Gestation. L. A. Baker, Tifton.—p. 529.

Illinois Medical Journal, Oak Park

46: 305-380 (Nov.) 1924

Use of Local Anesthesia in Acute Abdominal Emergencies. R. E. Parr, Minneapolis.—p. 325.
Hypernephroma of Kidney: Two Cases. A. E. McEvers, Rock Island. p. 329.
Publicity Side of Public Health Work. E. R. Pritchard, Chicago.—p. 333.
Radium Treatment of Malignancy. F. M. Hagans, Lincoln.—p. 336.
Retrobulbar Optic Neuritis; Bacillus Subtilis Infections. J. S. Clark, Freeport.—p. 339.
Selection of Cases for County Sanatoriums. F. M. Meixner, Peoria.—p. 342.
Responsibility of County Secretary. C. H. Diehl, Effingham.—p. 345.
Peptic Ulcer Complicating Pulmonary Tuberculosis. J. Meyer, Chicago. p. 348.
Medicolegal Value of Roentgen-Ray Diagnosis in Fractures. H. Swanberg, Quincy.—p. 352.
Thyroglossal Duct Anomalies; Three Cases. L. J. Lawson, Evanston.—p. 354.
Acromegaly, Defect of Development. B. V. McClanahan, Galesburg.—p. 355.
Importance of Early Recognition of Syphilis of Central Nervous System. S. Krumbolz, Chicago.—p. 357.
Doctors and People. A. M. Shaw, Adrian.—p. 361.
Ophthalmoscopy in Medicine and Surgery. W. A. Fisher, Chicago.—p. 362.
Scope of Periodic Physical Examinations. L. P. Kuhn, Chicago.—p. 364.
Relation of General Practitioner to Tuberculosis Problem. R. T. Pettit, Ottawa.—p. 369.

Journal of Infectious Diseases, Chicago

36: 1-107 (Jan.) 1925

"Bacterial Symbiosis" in Concretion Deposits of Certain Operculate Land Mollusks of Families Cyclostomatidae and Annularidae. K. F. Meyer, San Francisco.—p. 1.

Journal of Radiology, Omaha

5: 407-444 (Dec.) 1924

Physiotherapy in Ulcers, Sinuses and Fistulas. D. Kobak, Chicago.—p. 407.
Metastases in Malignancy. A. F. Tyler, Omaha.—p. 412.
Physiotherapeutic Medicine. R. B. Grover, Colorado Springs.—p. 415.
When and How to Select Physiotherapy Modality. W. S. Keyting, Salt Lake City.—p. 421
Electrical Currents in Living Tissues. E. C. Henry, Omaha.—p. 425.
Schlatter's Disease. W. S. Greenleaf, Atlantic, Iowa.—p. 426.

Ohio State Medical Journal, Columbus

21: 1-80 (Jan.) 1925

Treatment of Malignancy. G. F. Thomas and R. G. Giles, Cleveland.—p. 5.
Plastic Surgery: Relation to General Surgery. G. C. Schaeffer, Columbus.—p. 11.
Mental Defective Children. E. A. North, Cincinnati.—p. 15.
Obstetric Inversion of Uterus. W. H. Fisher, Toledo.—p. 19.
Ear, Nose and Throat as Sources of Focal Infection. S. H. Large, Cleveland.—p. 23.
International Preventive Medicine. J. R. Eary, Yellow Springs, Ohio.—p. 25.

Oklahoma State Medical Association Journal, Muskogee

18: 1-23 (Jan.) 1925

Ethmoid and Sphenoid Infections. J. R. Walker, Enid.—p. 1.
Treatment of Sinusitis in Children. J. C. Braswell, Tulsa.—p. 2.
Postoperative Ileus. L. A. Kahn, Guthrie.—p. 4.
Bile in Health and Disease. J. W. Riley, Oklahoma City.—p. 6.
Osteomyelitis. J. H. White, Muskogee.—p. 9.

Southern Medical Journal, Birmingham, Ala.

17: 823-910 (Nov.) 1924

Place of Pathology in Medical Sciences. W. G. MacCallum, Baltimore.—p. 823.
*Differential Leukocyte Count in Subtropical Climate. J. B. Wallace, Tampa, Fla.—p. 827.
Deep Therapy in Gastro-Intestinal Conditions. E. C. Samuel and E. R. Bowie, New Orleans.—p. 829.
*Quantitative Phenoltetrachlorphthalein Test as Index of Liver Function. A. L. Levin and R. D'Aunoy, New Orleans.—p. 831.
*Absence of Arsphenamin Reactions in Syphilis. M. Haase and C. H. Marshall, Memphis, Tenn.—p. 837.
Malnutrition of School Children. N. D. McCormack, Fort Smith.—p. 841.
Intensive Diagnosis Study. W. A. Dearman, Long Beach, Miss.—p. 844.
*Foot Drop: New Operation for Its Relief. R. T. Taylor, Baltimore.—p. 849.
*Developmental Errors in Fixation of Ascending Colon. A. B. Small, Dallas, Texas.—p. 853.
Extensor Rigidity Following Penetrating Wound of Both Hemispheres. C. C. Coleman, Richmond, Va.—p. 865.
End Results in Obstetrics. J. W. Bourland, Dallas, Texas.—p. 869.
Focal Infection. C. Thompson, Millen, Ga.—p. 873.

Leukocyte Count in Subtropical Climate.—Wallace examined the blood of 100 patients in a southern Florida hospital to ascertain the numerical relationship of the leukocytes to one another. The variation from the Ehrlich standard was in the polymorphonuclear and small lymphocyte percentages, the polymorphonuclears being considerably below the small lymphocytes, but well above the Ehrlich standard. Very little variation was found in the other types of cells. In this series, approximately 10 per cent. of the cases were found with conditions ordinarily productive of inflammatory leukocytosis. The lower total leukocyte counts are largely at the expense of the polymorphonuclear neutrophils. Wallace says that a considerable percentage of cases in this series undoubtedly had an inflammatory leukocytosis, so that it would appear that the polymorphonuclear percentages in this series would be rather above the normal for this section.

Phenoltetrachlorphthalein Test of Liver Function.—Levin and D'Aunoy report results obtained on the basis of readings secured with standards prepared according to Rosenthal's technic in twenty cases. They regard the quantitative estimation of phenoltetrachlorphthalein retention in blood plasma as being a valuable diagnostic aid in determining hepatic elimination and absorption under certain conditions. However, technical difficulties at present make impossible the application of the test in all cases in which liver function disturbance is suspected. Not all cases of liver disease present the characteristic retention curve. Retention is most noted in long standing cirrhosis and malignancy of the liver. The phenoltetrachlorphthalein test cannot be accepted as a general index expressing the various liver functions. At most, it expresses only the power of absorption and elimination.

Absence of Arsphenamin Reactions in Syphilis.—During three years and eight and one-half months, 17,877 injections of the old arsphenamin have been given in the syphilis clinic at the Memphis General Hospital. Of this number, 3,029 have been given to white patients and the remainder to colored. Haase and Marshall assert that from these injections there has not occurred a single severe reaction; that is, no case of exfoliative dermatitis, severe jaundice, severe kidney damage or of encephalitis. Of the mild reactions occurring at the time or soon after the injection, there have been seventeen. These included the "nitritoid" crises occurring at the time of injection, nausea, vomiting, and rise in temperature occurring from a few minutes to a few hours after the dose was given. No cutaneous reactions were observed.

Operation for Foot Drop.—The operation devised by Taylor is based on the use of fascia lata to suspend the foot in front from the shin. The upper end of a strip of fascia lata is sutured subperiosteally to the tibia 6 inches above the ankle joint, and the lower end is securely sutured to an incision made in the superior scapho-astragaloid ligament.

Technic for Colopexy.—In the technic recommended by Small for colopexy, the following points are emphasized: (1) An undue strain is taken from the hepatic flexure attachments and from the root of the mesentery by obliterating a primitive mesocolon; (2) a crumpled or prolapsed mobile colon is placed backward and upward on the shelving portion of the psoas muscle; (3) a linear attachment and support is changed to a base, the width of which should be equal to about one-fourth the circumference of the normal bowel; (4) in suturing the bowel to this base, such redundancy as may be found in a mobile colon is retroplicated; (5) the bowel is made straight and left in the free peritoneal cavity with its top and lateral muscular bundles untrammeled; (6) the mechanical procedure increases the anatomic and physiologic efficiency of the entire alimentary canal, and therefore is rational.

Surgery, Gynecology and Obstetrics, Chicago

40: 1-160 (Jan.) 1925

*Basic Principles and Supreme Difficulties in Gastric Surgery. H. B. Devine, Melbourne, Australia.—p. 1.
*Comparison of Sodium Tetrabromphenolphthalein with Sodium Tetraiodophenolphthalein in Gallbladder Radiography. L. R. Whitaker and G. Milliken, Boston.—p. 17.
*Postoperative Leukocytosis. M. S. Witter, New York.—p. 23.
*Congenital Absence of Uterus and Associated Developmental Defects. L. R. Wharton, Baltimore.—p. 31.
*First Dorsal Rib, Simulating Cervical Rib. W. M. Brickner and H. Milch, New York.—p. 38.
*Place of Elective Vein Ligation in Blood Vessel Surgery. R. W. McNealy, Chicago.—p. 45.
Tumor of Left Gasserian Ganglion. C. W. Rand, Los Angeles.—p. 49.
*Extensive Resection of Small Intestine in Infant. R. H. Jackson, Madison, Wis.—p. 55.
*Pain and Muscle Tension Caused by Inflammation of Diaphragmatic Costal and Lower Parietal Pleura Simulating That From Abdominal Viscera. F. M. Pottenger, Monrovia, Calif.—p. 62.
*Frequency of Gastrojejunal Ulcers. R. Lewisohn, New York.—p. 70.
*Effect of Surgical Trauma, in Patients with Syphilis; Healing of Postoperative Wound. W. H. Goeckerman, Rochester, Minn.—p. 77.
*Perforation of Silent Ulcer of Duodenum from External Trauma. H. W. Powers, Conrad, Mont.—p. 84.
*Treatment of Abortion. H. K. Tuttle, Ancon, C. Z.—p. 87.
*Metamorphosed Fat Deposits in Subdeltoid Bursitis: Three Cases. W. G. Stern, Cleveland.—p. 92.
Visible Changes in Liver in Chronic Cholecystitis. R. E. Weible, Fargo, N. Dak.—p. 94.
*Treatment of Infections with Intravenous Injection of Mercurochrome. H. H. Young, Baltimore.—p. 97.
*Subcutaneous Emphysema Following Labor. P. N. Charbonnet, Tulsa, Okla.—p. 105.
Granuloma Inguinale. W. S. Ehrich, Evansville, Ind.—p. 107.

*New Procedure for Relief of Pacies Scapholdes (Dish Face). W. T. Coughlin, St. Louis.—p. 109.
*Fractures of Femur: Results Attained by Traction and Suspension. H. E. Caswell, Fairfield, Ala.—p. 112
*Lateral Displacement of Cord in Oblique Inguinal Hernia Operations. L. F. Watson, Chicago.—p. 119.
Treatment of Wounds in Compound Fractures of Long Bones. F. Beckman, New York.—p. 120.
New Traction Frame and Caliper for Fractured Femurs. M. Longworthy, Spokane, Wash.—p. 125.

Gastric Surgery.—This paper by Devine is founded on 1,000 carefully kept records of private cases of dyspepsia, characterized by pain after eating and due to innocent causes. Two hundred and fifty of these cases presented definite, consistent symptoms and signs, and were cases of gastric duodenal ulcer. The remainder were due directly or indirectly to a disturbance of the gastric or duodenal neuromuscular mechanism. The conception put forth by Devine that the sympathetic imposes a retention postural tone on the gastric muscle is said to afford an explanation of many clinical phenomena. He argues that alterations in gastric posture, which are governed by the labile sympathetic, derange the natural alkaline duodenal protective regurgitation that controls acidity, and probably initiate a set of circumstances that may eventually result in ulcer. In some ulcers hyperacidity is the controlling cause, while in others some local loss of resistance, such as infection, is necessary for ulcer with a low acidity; in the former, an alkalizing operation is essential. Gastro-enterostomy is most uncertain in its regurgitant alkalizing effect. Unless an old ulcer is resected in association with gastro-enterostomy, recurrence even with a low acid from the residual infection of the ulcer is probable. The good effects of gastrectomy in duodenal ulcer, Devine believes, are due to the exclusion of the ulcer and to a better alkaline regurgitation rather than to any hyposecretion. The same effect can be obtained in these old ulcers if unassociated with obstruction, by the partial gastric exclusion operation, which is as simple, safe and conservative as a gastro-enterostomy, with the good effects of a gastrectomy. This is attained by eliminating the sympathetic retentive area of the stomach. The gastric ulcer type of stomach lends itself with success to extensive resection of ulcer with gastro-enterostomy or to partial gastrectomy. A method of operating in difficult gastric cases is suggested.

Gallbladder Radiography.—On account of the greater atomic weight of iodin, sodium tetra-iodophenolphthalein should be nearly twice as opaque to roentgen rays as sodium tetrabromophenolphthalein. In practice, nearly twice as much of the bromin salt as of the iodin salt is required to obtain a shadow of the gallbladder. The experiments made by Whitaker and Milliken indicate no appreciable difference in the toxicity of the two drugs. Consequently, for use in biliary cystography, there appears to be a wide margin of safety in favor of sodium tetra-iodophenolphthalein over the analogous bromin compound.

Postoperative Leukocytosis.—A series of thirty cases was studied by Witter every day after operation to show the general leukocyte curve for a week. A series of nine cases was studied in greater detail to determine the extract form of the curve immediately after operation. It was found that there is a leukocytosis following operation, which reaches its height by the fourth hour after operation, and returns to normal by the fifth day. The leukocytosis seems to be mainly a polynucleosis, the average of which compares grossly with the average total leukocyte count. The temperature does not rise synchronously with the leukocytes, but reaches its height several hours later. The average curve then remains grossly parallel with the leukocyte curve; but since the temperature and leukocyte curves are not parallel in individual cases, one cannot assume that a certain temperature is constantly associated with a certain leukocytosis.

Congenital Absence of Uterus.—The case reported by Wharton was one of complete nonunion of the müllerian ducts. The fallopian tubes seemed to terminate definitely in bulbs that were clearly separated from each other, and one of these bulbs contained a tiny uterine cavity lined by normal endometrium. There were no other structures in the pelvis which in any way resembled the uterus, cervix or tubes. The myomas were clustered round the small nodes at the ends of the müllerian ducts, and in that sense were myomata uteri. A fibromuscular septum separated the müllerian ducts and stretched across the pelvis between the bladder and rectum. A complete histologic examination was made of all structures, and a report on the findings is made by Wharton.

First Dorsal Rib Simulating Cervical Rib.—A case of supposed cervical rib is cited by Brickner and Milch which proved to be a maldeveloped first (dorsal) rib bearing an articulation in its shaft. Not many such cases are recorded in the literature. The authors also record a case of rudimentary cervical rib to illustrate the relief, without operation, that may be secured by elevation of the shoulder. It is urged that all cases, and particularly those in which for one reason or another operative intervention is contraindicated, should be given a trial of support and muscle training.

Vein Ligation in Blood Vessel Surgery.—McNealy has had eight cases of arteriovenous aneurysm, in all of which a quadruple ligation has been done, with seven cures and one death. The death occurred in a boy, about 11 years of age, who entered the hospital with an infected gunshot wound of the thigh. Following quadruple ligation, the severity of the infection necessitated amputation in an attempt to save his life. Following the amputation, infection spread to the buttocks, and the patient died of sepsis about two weeks after admission. In six of the cases the aneurysm was femoral, in one axillary, and in one radial. In aneurysms of the extremities, McNealy has resorted to simultaneous vein ligation in eight cases with cures in six; gangrene in one case, and one death. In this group there were aneurysms of the popliteal artery, one axillary, and three femoral. Cases of threatened gangrene in which there had been no response to medical treatment, cases of endarteritis obliterans and Raynaud's disease were also subjected to ligation. Only transient benefit resulted in these groups.

Extensive Resection of Small Intestine.—Jackson resected 4 feet 8 inches of ileum for acute intestinal obstruction due to strangulated internal hernia through a congenital foramen in the mesentery from a boy, aged 2. The boy is now 9 years of age. A roentgenogram of the gastro-intestinal tract shows that only about 12 inches of ileum remain. Previous to two years ago, the patient was greatly bothered by looseness of the bowels, often having seven or more unformed movements a day. The child has always been much thinner than other boys of his age until last year, when a decided improvement in this respect was noted. He has always been very active in play and generally displays a ravenous appetite. He cannot bear to go without food even the usual length of time, and therefore lunches between meals and insists on having plenty of candy and sweets each day. About three times a year the boy has had spells of "stomach trouble," which last from a few days to two weeks, during which he complains of severe diarrhea accompanied by generalized abdominal distress and occasional vomiting. During the past year he has been perfectly free from these attacks.

Reflexes Caused by Inflammation of Lower Segments of Pleura.—Pottenger calls attention to the reflexes that arise when the lower segments of the pleura are inflamed, and shows how they may overlap the areas involved when the abdominal viscera are inflamed. In studying diseases of the chest, pleural reflexes are frequently mistaken for acute abdominal conditions. Likewise, others suffering from diseases of the upper abdominal viscera believe their lungs to be involved because of the pain which they feel over the lower costal areas. From Pottenger's discussion it is evident that there are certain muscles or certain parts of muscles and certain skin and subcutaneous tissue segments which are more intimately connected reflexly with each internal viscus than others; and further, that it is in these particular tissues that each viscus shows the preponderance of its reflexes. It is further evident that the areas subject to reflexes for each organ are much more extensive than those which usually show the reflexes. If muscle tension and pain were always located above the diaphragm for pleural involvement, and below the diaphragm for inflammation of abdominal viscera, there would be less difficulty of diagnosis; but

with the same intercostal nerves supplying the tissues both above and below the costal border, conditions are present that cause considerable confusion. In calling attention to the confusion that occurs in differentiating supradiaphragmatic and infradiaphragmatic reflexes, and by showing the innervation of the viscera responsible for them and the nerve paths through which they are expressed, and, further, by discussing the laws which govern reflex action, Pottenger hopes that differential diagnoses in this important area may be aided.

Results of Gastro-Enterostomy for Ulcer.—In sixty-eight cases of gastro-enterostomy, with or without pyloric exclusion, reviewed by Lewisohn, a perfect cure was effected in 47 per cent., and in 19 per cent. a fair result was obtained. Thirty-four per cent. suffered from gastrojejunal ulcers. In twelve cases, a second operation was performed. In all cases the diagnosis was based on clinical symptoms and roentgen-ray findings. Lewisohn states that pyloric exclusion according to Berg's method does not increase the incidence of gastrojejunal ulcers. Gastro-enterostomy does not reduce the hyperacidity even after many years, whereas resection of the stomach effects an immediate and permanent anacidity in the majority of cases. Partial or subtotal gastrectomy safeguards against later occurrence of gastrojejunal ulcers. It should therefore be the method of choice in the surgical treatment of chronic gastric and duodenal ulcers. Partial or subtotal gastrectomy should be the method of choice in the surgical treatment of gastrojejunal ulcers. Application of conservative methods (local excision, etc.) is followed by too many recurrences. In 27 per cent. of the cases there were recurrences.

Patients with Syphilis Can Be Operated on with Impunity.—A review of the cases of fifty patients with syphilis who have been subjected to various surgical procedures has convinced Goeckerman that these patients can be operated on with impunity. The patient whose infection is of long duration is on the whole a poor surgical risk, but only in proportion to the damage his tissues have sustained. He is no worse risk than another patient with an equal amount of damage from some other cause. Untreated patients rarely develop postoperative difficulties (7 per cent.), but operation on a gumma will increase the damage, and reflects on the diagnostic ability of the physician. In a suspected case, conservatism indicates careful treatment before surgery is undertaken, if the lesion is not of an emergent character. The age, sex and anatomic systems involved seem not to influence the postoperative course. A considerable number of patients with syphilis are evidently operated on regularly without the surgeon's being aware of the condition. A routine Wassermann test materially reduces this number. A dose or two of arsphenamin, preparatory to operation, is not necessarily a wise procedure, except as a protective measure for the surgeon.

Perforation of Silent Duodenal Ulcer from Trauma.—Powers relates four cases. In each case the patient had apparently been entirely well previous to the injury, which caused perforation of a hitherto unsuspected ulcer of the duodenum.

Treatment of Abortion.—It has been the policy at Ancon Hospital to empty the uterus by operative procedure in all cases of abortion when membranes and placental tissue remain in the uterus. To compare the results with those obtained by more conservative methods of other clinics, a study was made by Tuttle of 1,164 abortion cases admitted to the hospital. The records show that in febrile abortion cases in which operation is performed promptly, there is a slightly higher average number of postoperative febrile days, a lower percentage of morbidity, and fewer average hospital days, than in those in which the operation is done a number of days after the temperature has remained normal. The average febrile days, morbidity percentage, and average hospital days of operative cases are lower than in the nonoperative cases. Tuttle believes that, in the ordinary incomplete abortion, the sooner the uterus is emptied the shorter will be the convalescence. The treatment of septic abortion requires mature judgment. Those cases in which infection has extended beyond the uterus, and without evidence of retained necrotic placenta or membranes, should be treated expectantly. However, in Tuttle's opinion, when such tissue remains in the uterus it is just as essential to remove it as a sloughing appendix in the abdomen, provided the removal can be accomplished without spreading the infection. Both are sources of infection so long as they remain in situ.

Metamorphosed Fat Deposits in Subdeltoid Bursitis.—In the three cases of subdeltoid bursitis reported by Stern, the patients all had the usual symptoms of subdeltoid bursitis, freedom of the sawing motions in the shoulder joints, inability to abduct and rotate the arm (both actively and passively), tenderness, pain radiating down the arm into the elbow and even forearm, inability to place the hand back of head or buttock, etc. In each case the symptoms became so severe that operative intervention was indicated, after the failure to obtain relief from physiotherapy. In all three cases the operation showed a small, oblong, encapsulated, soft but firm, nonfluctuating tumor, in or on the supraspinatus tendon at its insertion in the greater tuberosity. The contents of the tumor were granular, noncrystalline, nonoily, nonfluid, brownish gray, and absolutely not hard or bony when scraped with a knife blade. Nowhere was a bony or calcium deposit to be found. The laboratory reports in all three operative cases called the substance amorphous fat. It dissolved completely in ether and stained with osmic acid and sudan III, while the chemical tests for calcium were all negative.

Treatment of Infections with Mercurochrome-220 Soluble.—Two hundred and fifty-five cases of infection treated with mercurochrome-220 soluble are reviewed by Young. These cases included puerperal sepsis, septicemia, erysipelas, genitourinary infections, gonorrhea, pneumonia, local infections, typhoid, meningitis, epidemic encephalitis, multiple arthritis, gas gangrene, acute osteomyelitis and psoriasis. The percentage of recoveries was 42.3; marked improvement resulted in 38.8 per cent. and failure in 24 per cent. Slightly more than two thirds of the failures occurred in cases of gonorrhea.

Subcutaneous Emphysema Following Labor.—Charbonnet reports a case in which, after a normal labor lasting about twenty hours, a primipara, aged 18, developed a subcutaneous emphysema extending from the level of the second costal cartilages on the anterior aspect of the chest and anterior surface and both sides of the neck and face up to the level of the external auditory orifice. There was also some emphysema of the tissues inside the mouth and throat. There was no discoloration, and the characteristic crackling could be elicited on pressure. Pulse and temperature were normal. The respiration was slightly labored. The blood pressure was 174 systolic. Examination of the chest was negative. She was placed in a semirecumbent position and given hot liquids. Hot applications were made over the emphysematous areas. The emphysema gradually subsided, but did not disappear entirely until the eleventh day.

Use of Rib Transplant in Disfigured Face.—Coughlin resorted to rib transplantation to lift the whole lower part of the nose forward permanently in a case of this type. The operation was successful.

Treatment of Fracture of Femur.—Conwell reviews the results attained by traction and suspension in 110 cases. They were uniformly good.

Lateral Displacement of Cord in Herniotomy.—When recurrence follows the operation for oblique inguinal hernia, it almost always takes place at the internal ring, at the lower end of the incision over the pubic bone, or in the line of deep sutures. In suitable cases, Watson reenforces these weak spots by a lateral displacement of the cord. The Bassini operation is followed up to the point at which the cord is transplanted. The cord is made as small as possible by removing all its coverings, leaving only the vas deferens and the spermatic vessels. The upper flap of aponeurosis is freed from the internal oblique as far as the outer border of the rectus. The cord is placed on the internal oblique, from one-half to 1 inch internal to the deep suture line, the exact distance depending on the length of the cord, and is retained in this position by one or two sutures.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian Journal of Experimental Biology and Medical Science, Adelaide

2: 131-195 (Dec. 15) 1924

*Studies on Plain Muscle. O. W. Tiegs.—p. 131.
Influence of Washing on Multiplication of Isolated Infusoria and on Allelocatalytic Effect in Cultures Initially Containing Two Infusoria. T. B. Robertson.—p. 151.
Muscular Receptivity. W. A. Osborne.—p. 175.
Separation of Proteoses Derived from Egg Albumin. G. V. Rudd.—p. 179.
Proteoses, Peptones and Polypeptids. G. V. Rudd.—p. 187.
Adjustable Flexion Tube Microscope. W. J. Penfold.—p. 191.

Nature of Muscle Movement.—The idea of myogenic rhythmic movements of isolated plain muscle is shown by Tiegs to be untenable, and the origin of the stimulation is ascribed to the nerve network. Evidence is given to show that within the organism plain muscle movement probably is initiated by the nerve ganglions. The necessity for the existence of a reciprocal innervation of the two muscular coats that surround a tube or a hollow viscus is pointed out. Usually contraction of one coat is accompanied by relaxation of the other. Rapid writhing movements are ascribed to coordinated contraction of the fibers of a musculature, both of whose coats are in a state of partial tonic contraction.

British Journal of Radiology, London

2D: 395-434 (Nov.-Dec.) 1924

Radiographic Survey of Normal Joints. St. J. D. Buxton and R. Knox.—p. 395.
Duodenal Ulcer in Child; Fracture and Dislocation of Scaphoid. W. M. Carrick.—p. 411.
Gold Filter Spectrometry in Roentgen-Ray Practice. C. Heuser.—p. 412.

British Medical Journal, London

1: 1-30 (Jan. 3) 1925

*Iodin in Exophthalmic Goiter. F. R. Fraser.—p. 1.
*Chronic Mastitis as a Term. G. L. Cheatle.—p. 5.
Psicaine: New Local Anesthetic. A. J. Copeland.—p. 9.
Psicaine: Artificial Cocain. E. Watson-Williams.—p. 11.
*Treatment of Perforated Gastric and Duodenal Ulcers. G. P. Mills.—p. 12.
Conjunctivitis in Tropics. R. H. Elliot.—p. 12.
*Treatment of Varicose Veins of Leg by Injections. J. Dunbar.—p. 14.
Dorsolumbar Dislocation of Spine Reduced by Operation. W. A. H. McKerron.—p. 15.
Case of Suprarenal Tumor, with Degeneration of Reticulo-Endothelial System. J. G. Willmore and M. Douglas.—p. 16.
*Perforation of Kidney by Large Branched Calculus. Perinephric Abscess: Septicemia: Death. W. Everett.—p. 17.
Case of Measles with Meningism and Surgical Emphysema. R. W. Nesbitt.—p. 18.
Congenital Malformation of Diaphragm. J. G. McLannahan.—p. 18.
Ovarian Cyst Complicating Labor. N. Porritt.—p. 19.

Iodin in Exophthalmic Goiter.—The therapeutic effect of iodin in twenty-four hospital cases of exophthalmic goiter was investigated by Fraser. The iodin preparation used was the 10 per cent. tincture of the French Codex, in which the iodin is dissolved in 95 per cent. alcohol without the addition of any iodid. In eight of the twenty-four cases, the results were sufficiently clear to justify detailed accounts. In five cases no beneficial action could be noted, but in three of them coincident infections may account for this. In one case, septic teeth and chronic appendicitis, in another tonsillitis, and in a third bronchopneumonia, may have prevented the evidence of iodin action being seen. In none of the five was any harmful effect discoverable. In two cases, undesirable effects were prominent. In these two cases, much larger doses than those usually given were employed. Experience showed that doses of 9 and 15 minims daily gave as good results as could be obtained with larger doses. If, however, such doses were continued for long, after a varying number of weeks the thyroid would become gradually harder, and distressing symptoms of palpitations, pressure in the neck, chocking sensation, and occasionally increased exophthalmos and tachycardia, would develop. After obtaining a decided benefit on daily doses of 9 or 15 minims and no further improvement occurring, the dose is reduced to 6 or 3 minims, and the patient can continue on such doses almost indefinitely. In each case, repeated examination is necessary to ascertain the optimum dose to maintain the improved condition. On the appearance of a rise in heart rate, or of the gland becoming harder, all iodin is omitted for one or two weeks and then recommenced on a lower dose. The ultimate results have not been as good as might be expected. Worry, excitement and infections can undo all the benefit derived from the iodin. Fraser thinks that iodin cannot withstand the consequences that the daily contact with the world, either at work or at home, has on persons affected with exophthalmic goiter, and that so far it is of limited value in the medical treatment of the condition.

Chronic Mastitis.—The term "chronic mastitis" is, in Cheatle's opinion, fallacious because it does not refer, as its name implies, to an inflammation of the breast, and also because the clinical signs universally considered to be connected with it mask many and various states of breast hyperplasia. It is a dangerous diagnosis, because these clinical signs hide carcinoma in its earliest stages, advanced carcinoma in rarer examples, and many other states of epithelial hyperplasia.

Gastrojejunostomy for Perforation of Gastric and Duodenal Ulcer.—Mills pleads for the performance of gastrojejunostomy whenever possible at the time of operation for perforation. He reports forty cases of ulcers: Sixteen were duodenal, fifteen were prepyloric, five were in the body of the stomach, and in four the situation of the ulcer was not stated. Every patient but one was operated on. This patient was moribund on admission, and failed to rally with treatment. In early cases, seen within about twelve hours of perforation, suture of the ulcer and gastrojejunostomy were performed without drainage of the peritoneum, except in three instances of very severe soiling, in which a suprapubic drain was put to the bottom of the pelvis. The same treatment was adopted in a few late cases in which the patient, in spite of long perforation, was still in good condition. In the majority of late cases, suture of the ulcer and pelvic drainage were all that was attempted. A single row of sutures covered by omentum was used, and this proved mechanically efficient to prevent further leakage. Of the whole series, eleven patients died. Among twenty-two cases in which immediate gastrojejunostomy was done, one patient died. The death was due to pneumococcal peritonitis seven days after operation. Of seventeen cases in which suture and drainage without gastrojejunostomy were done, nine patients died. Five patients died within twenty-four hours of operation from peritoneal shock, three a few days later from peritonitis, and one from acute nephritis and uremia. A striking fact about the series in Mill's opinion is the complete absence of any subphrenic abscess. He attributes this to the fact that he put no drainage tubes into the upper abdomen. Of the twenty-nine survivors twenty-two were traced. Cases without gastrojejunostomy: traced, eight; perfectly well, one; still serious gastric trouble, five; relieved by subsequent gastrojejunostomy, one; died of carcinoma, one. Thus, of eight patients, only one was cured. Cases with gastrojejunostomy: traced, fourteen; perfectly well, ten; at work, but with some gastric discomfort at times, four.

Sodium Salicylate Injections in Treatment of Varicose Veins.—Dunbar has treated thirty cases of varicose veins of the leg by injecting these veins with sodium salicylate. The susceptibility of the patient to the drug is tested by injecting about 1 c.c. of a 20 per cent. solution into the veins. If there is no reaction next day a stronger solution is used, but it is recommended not to go above 40 per cent. Several sections can be injected at the same time, but the total dose of sodium salicylate should not exceed 3 gm. No constricting band is used. If a cure does not result, the treatment can be repeated. Dunbar does not recommend injecting an inflamed vein. He does not claim that the results of injecting varicose veins are better than those obtained by operation, or that the liability to return of the varicose condition is less; but he does claim that the treatment improves the circulation

in the legs, and consequently the strength of the lower extremities, without incapacitating the patient in any way.

Perforation of Kidney by Calculus.—The calculus in Everett's case apparently had been present for many years without causing any symptoms pointing to renal calculus. The patient, aged 60, stated that until six days previous to her admission she had been a very healthy woman, with hardly a day's illness in her life of sixty years. She had however, suffered from time to time from flatulence, and when this occurred she had a dull aching pain in the back, which disappeared after getting rid of the flatulence. Six weeks previous to the commencement of her illness, she complained of a severe pain in her back after lifting a heavy bucket of water; next she complained of general backache on getting up in the morning, which later in the day became more severe and settled down to the right of the spine. She felt ill, and that night had a rigor and vomited. Vomiting occurred several times daily from the beginning of her illness. On the third day, she complained of the pain spreading to the front of the abdomen on the right side. On the fifth day she again had a rigor and diarrhea. Careful investigation of her past life revealed no history of hematuria, no colic or radiating pains, and no frequency of micturition; and the urine, as far as she knew, had always been clear. At operation, the stone was found to fill the kidney pelvis completely. There was also perforation of the kidney, with leakage of urine and formation of abscess within the fatty capsule; extravasation beyond the fatty capsule with abscess formation, and cellulitis of the posterior abdominal wall and septicemia, the latter being the cause of death, which occurred on the third day after operation. The stone measured 4¾ by 12½ inches (12 by 31.5 cm.) and weighed 1,202 grains (78 gm.). It consisted of calcium phosphate.

Journal of Tropical Medicine and Hygiene, London

28: 1-20 (Jan. 1) 1925.

*Diseases of Central America. A. Castellani.—p. 1.
Search for Intermediate Hosts and Study of Their Radule. F. G. Cawston.—p. 14.

Diseases of Central America.—Castellani discusses Guatemala nodules (Guatemala onchocerciasis); Central American myiasis (el torsalo, gusano); tropical rhinoscleroma; alastrim; dermal leishmaniosis of Central America; granuloma inguinale; mycotic diseases; a new type of mycotic stomatitis; pineapple estates pyosis; dermatosis papulosa nigra; mossy foot; the red mite of Panama, and pinta. Pinta is generally defined as being a dermatosis characterized by the presence of patches of various colors, jet black, bronzine black, violet, blue, red, yellow and white. According to Montoya, the black, blue and violet patches are caused principally by *Aspergillus;* the yellow variety by *Monilia* and *Aspergillus;* the white variety by *Monilia.*

Lancet, London

1: 1-60 Jan. 3) 1925

*Renal Tuberculosis. C. A. R. Nitch.—p. 1.
*Effect of Deep Therapy on Blood in Leukemia. W. L. Watt and J. C. Braine.—p. 6.
Melioidosis, Disease of Rodents Communicable to Man. A. T. Stanton and W. Fletcher.—p. 10.
*Tuberculin Treatment in Experimental Tuberculosis. L. S. P. Davidson. —p. 13.
Abnormal External Jugular Vein. A. J. E. Cave.—p. 15.
*Alarming Hemorrhage Due to Streptococcus Infection. M. Yearsley.—p. 16.
Extreme Malformation of Uterus. F. Cook.—p. 17.
*Deterioration of Insulin in Tropics. A. N. Kingsbury.—p. 18.
*Diagnosis of Tuberculous Meningitis in Children. W. L. Kinnear.—p. 18.
*Case of Intestinal Obstruction. A. G. Bryce.—p. 18.

Renal Tuberculosis.—Nitch reviews the clinical history of tuberculosis of the kidney, and analyzes fifty-two cases in which an operation was performed. Nephrectomy was performed in thirty-three, and in the remaining nineteen the entire ureter was removed as well. In seven of the nephrectomy cases and in three of the combined cases, death resulted. After the more extensive operation the number of apparent cures is slightly higher, and the number of cases with bladder symptoms slightly lower. Forty-eight of these patients were traced. Forty-two were living and six had died within two and a half years of the operation, either from phthisis or tuberculosis of the remaining kidney. The present condition of the forty-two survivors is as follows: Twenty-five, are in good health and may be regarded as cured, and seventeen are still suffering from bladder symptoms, either frequency only, or frequency and pyuria, and in three of these tubercle bacilli are still present in the urine. While admitting that the results of the surgical treatment of renal tuberculosis are not as good as they ought to be, Nitch is convinced that before long, when the medical profession as a whole has learned to regard all cases of mild "cystitis" with suspicion, and when the ureters of a patient with a sterile purulent urine are regularly catheterized, and the two specimens of urine are examined for tubercle bacilli, there will be a negligible operative mortality, a great increase in the percentage of cures, and a corresponding diminution in the troublesome genito-urinary complications.

Deep Therapy in Leukemia.—An analysis of eight cases in which Watt and Braine resorted to deep roentgen-ray therapy shows that from the commencement of the exposure to deep therapy irradiations the leukocytes begin to lessen in number and the destruction is most marked during the last half of the irradiation. The subsequent fall may be interrupted by a fleeting primary reaction coming on from two to five hours afterward, and by a secondary reaction, which comes on from two to five days afterward and usually lasts twenty-four hours. The susceptibility of the individual leukocytes varies with the type of leukemia. In the lymphatic type the lymphocyte is the most susceptible; in the myelogenous type it is the myelocyte, and in the polymorphonuclear type the polymorphonuclears. However, no matter which type it is, all the leukocytes share in the fall and also in the primary and secondary reaction. With the fall of the leukocytes there is a rise in the number of the red blood corpuscles and the hemoglobin index. Conversely, when the red blood corpuscles and hemoglobin fall, the leukocytes increase in number. The spleen steadily diminishes in size, without undue rapidity and without any apparent deleterious effect. Likewise, the liver, when enlarged, and also the lymph glands, similarly diminish in size. The health of the patient steadily improves, and in uncomplicated cases, without any serious disturbance of compensation, he is soon back to full-time work. Splenectomy is not a contraindication, as the effect is almost as striking as if this organ were present. Patients already subjected to a long course of ordinary roentgen-ray treatment, with final failure to respond, are still susceptible to deep therapy with considerable hope of improvement.

Effect of Tuberculin on Experimental Tuberculosis.—As judged by body weight, the period of survival and microscopic findings, tuberculin treatment of the experimentally infected guinea-pigs, in the investigation made by Davidson was not only ineffective in controlling the infection, but was actually harmful.

Hemorrhage After Tonsillectomy Due to Streptococcus Infection.—In one of Yearsley's cases a submucous resection was performed, followed by dissection of the tonsils. A troublesome general oozing from the tonsils followed, which was treated at first in the usual manner. No special bleeding spot could be found, and it was noted that the hemorrhage appeared to occur at about twenty minute intervals, each attack being heralded by the detachment of a very friable clot. The strong streptococcus odor of the case was a feature. Twenty cubic centimeters of antistreptococcic serum was injected, and the bleeding ceased quickly. The next morning the patient was much better, but there was still a little oozing, and a second dose of 20 c.c. of serum was given. After seven hours, all bleeding had ceased. The second case was also one of hemorrhage after tonsillectomy. It began on the fifth day after operation. Here, too, a strong streptococcic odor was a feature. Bleeding stopped completely after one injection of 25 c.c. of antistreptococcus serum. In both these cases hemorrhage was due to a hemolytic organism, rendering the clot soft and liable to crumble at the slightest touch.

Deterioration of Insulin in Tropics.—A batch of insulin was stored for six months in the tropics and then was reassayed by Kingsbury on local rabbits. It appeared to have deteriorated by about 40 per cent. The reassay was done also on the first local generation of recently imported rabbits. The results then indicated little, if any, deterioration.

Diagnosis of Tuberculous Meningitis in Children.—An interesting point in Kinnear's analysis of 100 cases of tuberculous meningitis was the diagnostic importance of increased globulin content in the cerebrospinal fluid, a definite cloud with the Noguchi reaction being sufficient to exclude cases of meningism in which the fluid was also usually under increased pressure.

Intestinal Obstruction Caused by Roasted Chestnuts.—In the case cited by Bryce, a diagnosis of incomplete intestinal obstruction was made. At operation, a fair amount of free serous fluid escaped. The cecum was collapsed, and no greatly distended bowel presented; but three irregular hard bodies were found lying close together within the lumen of the small intestine at a point estimated to be 3 or 4 feet from the ileocecal junction. The intestine below the site of impaction was collapsed. The foreign bodies were found to be chestnuts, of which the largest was of the usual size and the smallest half the size of an ordinary chestnut. All were minus the outer shell and covered by a thin layer of fecal material. Inquiry elicited the fact that the patient had eaten roasted chestnuts and had swallowed them whole. The interest of the case lies largely in the fact that the chestnuts had been unaffected by the digestive ferments over a period of nearly ten weeks.

Medical Journal of Australia, Sydney

2: 645-672 (Dec. 20) 1924

"Coral Cut." K. Byrne.—p. 649.
Injuries and Lesions Caused by Bites of Fish. W. E. J. Paradice.—Leukemia Due to Foreign Bodies. W. K. Hughes.—p. 652.
Fibrosis of Descending Colon. H. S. Stacy.—p. 653.
Intracranial Hemorrhage in Newly Born Treated with "Hemostatic Serum." W. E. Groves.—p. 653.

2: 673-688 (Dec. 27) 1924

Cinderella (Midwifery) of Medicine. D. G. Croll.—p. 673.
Thyroid Therapy. F. J. T. Sawbina.—p. 677.
Duodenal Ulcer. J. H. Halliday.—p. 679.

1: 1-26 (Jan. 3) 1925

Acute Cranial Injuries: Treatment. H. S. Stacy.—p. 1.
*Fracture of Skull in Children. P. L. Hipsley.—p. 5.
Twenty-One Months with Deep Therapy Treatment. A. T. Nisbet.—p. 9.
Spindle Cell Sarcoma of Broad Ligament. R. F. May.—p. 15.

Fracture of Skull in Children.—Twenty-seven cases are reviewed by Hipsley. There were twenty-five recoveries and two deaths. The position of the fracture with reference to the bones involved was as follows: parietal, fifteen; frontal, four; frontal and parietal, one; parietal, one; parietal and occipital, one; base of skull, two; not recorded, four. The variety was: simple fissured in eighteen, simple depressed in two, compound depressed in six and not recorded in one. The treatment is discussed.

Edinburgh Medical Journal

31: 637-703 (Dec.) 1924

Thoughts on Medical Discovery. R. Ross.—p. 637.
*Facial Irritability. C. McNeil.—p. 651.
Value of Enterostomy in Acute Intestinal Obstruction. K. P. Brown.—p. 663.
Two Cases of Bilateral Congenital Cystic Disease of Kidneys. R. L. Stewart.—p. 668.

32: 1-44 (Jan.) 1925

Schistoglossus and Double Tongue. D. M. Greig.—p. 1.
Eighteenth Century Consultant. J. D. Comrie.—p. 17.
Twenty Cases Treated with Pepsone. E. Bulmer.—p. 31.

Facial Irritability and Spasmophilia.—M'Neil finds that in infancy facial irritability is definitely associated with the convulsive disorders known as spasmophilia and including laryngismus, general convulsions and tetany. At this period of life, facial irritability indicates that spasmophilic convulsions (one or more kinds) have recently occurred, or may occur in the future. The likelihood of return of active spasmophilia may be judged by the severity of the facial reaction, and by the degree of muscular atony present. In the great majority of cases of spasmophilia bony rickets is also present. The severity of the bony lesions of rickets is an unreliable guide to the danger of active spasmophilia. In twenty-eight of fifty-six cases of bony rickets, facial irritability was absent. Over the age of 2½ years there is no apparent association of facial irritability with general convulsions, or with asthma. At this period, facial irritability does not indicate that general convulsions have occurred or are likely to occur. Facial irritability does not indicate a neuropathic constitution, or any recognized functional disorder or organic disease of the nervous system. In most cases of older children, the sign has no definite nor serious pathologic significance. It is met with most frequently in cases of disordered digestion, mild and severe. Its frequent occurrence in cases of celiac disease suggests that it may be the result of disordered calcium metabolism in that disease, and in other conditions of chronic dyspepsia. Its still more frequent occurrence in cases of rickets complicated with spasmophilia may be due to the same condition of disordered calcium metabolism.

Glasgow Medical Journal

20: 353-428 (Dec.) 1924

Vistas and Visions: Some Aspects of Colonial Medical Services. A. Balfour.—p. 353.
Problem of Tuberculous Child. J. Crochet.—p. 375.
Four Cases of Bone Transplantation. W. Rankin.—p. 385.
Place of Emotion of Fear in Etiology of Neuroses. R. S. Gibson.—p. 388.

National Medical Journal of China, Shanghai

10: 361-418 (Dec.) 1924

Value of Postmortem Examination. C. H. Tyau.—p. 361.
*Cases of Schistosoma Japonicum Infection. J. T. Tai.—p. 370.
Twilight Sleep in China. M. H. D. Lin.—p. 377.
Enteric Fevers and Their Complications in China. U. K. Koo.—p. 382.
*Splenomegaly with Ascites. H. T. Chiang.—p. 387.
Present Status of Insulin Therapy in Diabetes Mellitus. V. Loh.—p. 391.

Incidence of Schistosoma Infestation in China.—An examination of the feces of 400 Chinese patients made by Tai showed that 75 per cent. of all the patients are infested with some sort of intestinal helminths, and that schistosome infestation stands fourth in the list, 7 per cent. of all the patients and a little more than 9.5 per cent. of the infested cases.

Splenomegaly with Ascites.—Thirty cases of this type were seen by Chiang. Twenty-three harbored parasites either in the form of simple or mixed infection. Among those infected with parasites, 56.5 per cent. come under the category of schistosomiasis. Even among the latter, but four patients suffered only from schistosomiasis.

Sei-I-Kwai Medical Journal, Tokyo

43: 1-9 (Dec.) 1924

"Orchidoma" or "Orchidoblastoma" of Horse. T. Kimura.—p. 1.
Obliteration of Root of Portal Vein by Syphilitic Hyperplasia. T. Kimura and N. Baba.—p. 7.
Etiology of Endemic Pseudodysentery in Yamagata. H. Wago, Y. Suga, M. Goto and Y. Suzuki.—p. 8.

Tubercle, London

6: 105-160 (Dec.) 1924

*Bacteriologic Characteristics of One Hundred Strains of Tubercle Bacilli Isolated from Sputum. W. J. Tulloch, W. T. Munro, G. R. Ross and W. M. Cumming.—p. 105.
Roentgen-Ray Appearances of Tuberculous Joints. R. W. A. Salmond.—p. 123.

Isolation of Tubercle Bacilli.—Methods are described by Tulloch et al. for the isolation of tubercle bacilil direct from sputum and morbid exudates. A serologic survey of tubercle bacilli isolated from human sources shows that these all conform to one serologic type. Chronic tuberculosis can be produced in guinea-pigs with virulent tubercle bacilli provided that the dose be sufficiently small. The weight charts alone cannot be regarded as of much value as an index in therapeutics. There is no evidence that any of the antigens employed exhibited therapeutic qualities. Methods are described whereby it may be possible to repeat the experiments of Webb and Williams with a simple technic.

Bulletin de l'Académie de Médecine, Paris

98: 143 (Jan. 6) 1925

Artificial Pneumothorax in Pulmonary Tuberculosis. Bernard et al.—p. 46.
Traffic in Narcotics. Contière.—p. 52.
Action of Extract of His' Bundle on Arterial Pressure. K. Djenab and Mouchet.—p. 60.

98: 65-84 (Jan. 13) 1925

*Congenital Subluxation of Hip Joint. Calot.—p. 77.
*Lesions in Mother and Fetus. Merklen et al.—p. 80.

Congenital Subluxation in Pathogenesis of Hip Diseases.—Anatomic study of the hip joints, at 700 necropsies, convinced Calot that one out of every thirty subjects, regardless of age, represents a congenital subluxation of the hip joint. Partial dislocation seems to be about ten times more frequent than complete luxation. The congenital anomaly is a *locus minoris resistentiae*, since any injury, pregnancy, or an intercurrent disease may aggravate the functional instability of the joint. He affirms that 75 per cent. of cases diagnosed as tuberculosis of the neck of the femur, as well as 50 per cent. of cases labeled coxalgia, should be ascribed to a congenital malformation. Necropsy in eighty cases of rheumatoid arthritis of the hip joint showed that in 96 per cent. a congenital subluxation had been the initial factor of the later disease. He claims that all cases of Legg's osteochondritis are nothing but a congenital subluxation of the hip joint. Radiography showed in certain cases spots in the epiphysis and in the neck of the femur which, he says, are often mistaken for tuberculous foci. Defective nutrition from disturbed calcium metabolism may explain these spots.

Simultaneous Lesions of Homologous Organs in Mother and Fetus.—Merklen, Wolf and Oberling report a case in which delivery had been induced at the eighth month on account of a grave condition of the woman from diabetes. The child, who died twenty-two hours after birth, presented 1.2 per cent. of sugar in the urine. In the mother, who died two hours before, the glycemia had dropped from 0.41 to 0.18 per cent., while the azotemia had risen from 0.03 to 0.18 per cent. Necropsy of the mother showed characteristic lesions of nephritis, and degeneration of Langerhans' islands, but normal ducts and lobules. Identical lesions of the kidneys were found in the infant, also hypertrophy of Langerhans' islands, and changes in the lobules. In a case of acute nephritis with azotemia, in a pregnant woman, the microscopic findings in the still-born child confirmed an acute nephritis.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 1751-1814 (Dec. 6) 1924

*The Laws of Heredity. R. Benard.—p. 1751.
"Tuberculous Neuritis." Crouzon.—p. 1756.
*Blood Cultures in Solid Medium. Boez and Keller.—p. 1757.
*Bacillus Ramosus Septicemia. Boez and Holtzmann.—p. 1761.
*Myopia from Neo-Arsphenamin. Milian.—p. 1765.
European Case of Bilharziasis. C. Dimitracoff.—p. 1771.
Spirochetal Bronchitis. C. Dimitracoff.—p. 1774.
Diagnosis of Disease in Duodenum-Gallbladder Region. Jacquelin and Lévy.—p. 1777.
*Hereditary Hypochondroplasia. Léri and Linossier.—p. 1780.

The Law of the First-Born and the Law of Alternance in Heredity.—Benard finds that a malformation, subject to the mendelian laws, affecting a member of a predisposed family, is usually transmitted to the first-born of the offspring. It seems as if Nature, anxious to perpetuate the anomaly, affects the first-born with it, since he may be the only offspring in the family. The second child will be normal, the third abnormal, and so on. From the fourth child on, the law of alternance is less rigorous; after the third pathologic child may succeed two or three normal ones, followed again by an abnormal child. More rarely, after several normal children, two pathologic ones may be born in succession. If the oldest in the family did not inherit a malformation of a mendelian type, then all the other offspring will be free from it, and the deformity will not be transmitted to posterity. A woman born with two incisors gave birth to three children. The first and the third (boys) presented the same anomaly. The second child (female), normal, has had nine children, all normal. The first and the third children had each six children, but since the oldest in both families was free from the deformity, it did not appear in the third generation. He gives the family tree in two families with brachymelia obeying these laws, recurring in one through five generations.

Mediums for Detection of Anaerobes.—Boez and Keller report that in a case of puerperal septicemia with metastatic empyema, an anaerobe, *Micrococcus foetidus*, was found in the blood and pus in cultures on a solid medium, but not in fluid mediums. Using solid mediums for blood culture, Boez, in cooperation with Holtzmann, found another anaerobe, *Bacillus ramosus*, in a case of septicemia with no clinical evidence of anaerobic infection. Boez mixes the blood with agar and pours it to form a thin layer between two shallow glass dishes that lock together, forming a cavity with a capacity of 110 c.c. Anaerobes grow readily, and are easily counted.

Visual Disturbances from Neo-Arsphenamin.—Milian reports two cases of syphilis in which every injection of neo-arsphenamin caused a transient myopia. The phenomenon appeared ten and thirty-eight hours after the injection, and persisted two days. It coexisted with a slight or pronounced albuminuria, and was preceded by general signs of intolerance. The myopia may be due to toxic paralysis of the sympathetic. He has noted this complication only four times within fourteen years.

Achondroplasia in Mother and Daughter.—In Léri and Linossier's case, the characteristic signs were almost all present, but so attenuated that they did not attract attention at first. Congenital syphilis may have been involved in the congenital achondroplasia. The improvement in the younger woman under treatment for syphilis confirmed this assumption.

Encéphale, Paris

20: 553-616 (Nov.) 1924

Belated Emotion in Hysteria. Claude and de Saussure.—p. 553.
Muscle Tonus in Disease of Pyramidal Tract. Koumetsov.—p. 559.
Neurologic Conception of Catatonia Syndrome. P. Guiraud.—p. 571.
*Sarcoma at the Base of the Brain. Obregia and Paulian.—p. 580.
Forms of Senile Dementia. Lhermitte and Nicolas.—p. 583. Cont'd.

Sarcoma at the Base of the Brain.—Obregia and Paulian describe a case of sarcoma at the base of the brain in a woman, aged 22, emphasizing that while the patient suffered from intense headache, there was no screaming or moaning. Necropsy showed the tumor in the base, and predominantly in the right optic portion of the hypothalmus and peduncle, extending to the sylvian fissure. The clinical picture resembled that of epidemic encephalitis in the somnolency, abolition of accommodation reflex, nystagmus, catatonia, tremor, parkinsonian attitude, adiadokocinesis, rigidity, and glycorrhachia. The symptoms of pressure on the brain, vomiting, staggering and tendency to fall toward the left, suggested a brain tumor. The catatonia and apathy—which are common also in dementia praecox—may indicate an identical localization of the lesions.

Journal d'Urologie Médicale et Chirurgicale, Paris

28: 361-448 (Nov.) 1924

*Nephrectomy in Renal Tuberculosis. A. Hogge.—p. 361.
*Partial Hydronephrosis from Calculi. T. Lucri.—p. 373.
*Syphilis of the Bladder. J. de Gouvêa.—p. 388.
Hydronephrosis in Horse-Shoe Kidney. Rochet and Patel.—p. 396.
Primary Sarcoma in the Bladder. G. Cirillo.—p. 401.
Perineoscrotal Hypospadia. E. Jeanbrau.—p. 405.

Nephrectomy in Renal Tuberculosis.—Hogge gives statistics of 100 cases of nephrectomy for tuberculous kidney, performed in subjects aged from 11 to 61 years; 56 patients recovered completely; 48 of them are still alive and feeling perfectly well; in two instances the interval since has been eighteen and twenty-one years; 8 died from an intercurrent affection, or from tuberculous manifestations elsewhere. Thirty-seven were only improved; 27 in this group died from one to ten years later; in 3 out of the 10 still living, the improved condition has persisted to date for six and ten years. Seven patients died, from one to three months after the operation.

Partial Hydronephrosis from Calculi.—Referring to three personal cases and three from the records, Lucri points out

three methods for intervention. With pronounced destruction of the kidney, nephrectomy is indicated. In partial hydronephrosis, with sound renal tissue, mere removal of the calculi is advisable, with or without partial resection of the distended part of the kidney.

Syphilis of the Bladder.—De Gouvéa has treated within nine years nine cases of syphilis of the bladder, mostly in the tertiary stage, in patients from 30 to 60 years old. The lesion of the bladder in the secondary stage resembles the usual skin and mucosa lesions in the disease. In the tertiary stage, the lesion may represent a gumma, ulceration, papilloma or leukoplakia. The symptoms are similar to those in cystitis. The diagnosis is made by differentiation from tuberculosis and cancer, and after tentative treatment for syphilis.

Médecine, Paris

6: 173-248 (Dec.) 1924

Hygiene and Infectious Diseases in 1924. L. Tanon.—p. 173.
*Isolation in Prophylaxis of School Epidemics. L. Bard.—p. 189.
*Shock Treatment. Merklen and Wolf.—p. 196.
*Male Genital Glands in Infectious Diseases. Tourneux.—p. 202.
*Modern Conception of Spirochetoses. A. Philibert.—p. 207.
*Malta Fever. P. Sée.—p. 213.
Aviation in Relation to Contagious Diseases. Martinet—p. 219.
Typhoid Fever After Vaccination. M. Bloch.—p. 224.
*Modern Conception of Plague Epidemiology. Karsenty.—p. 226.
Pulmonary Amebiasis. A. Lautman.—p. 232.
Meningitis with Limpid Cerebrospinal Fluid. E. Schulmann.—p. 238.
Alimentation and Tuberculosis. G. Mouriquand. Supplement, pp. 1-47.

Prophylaxis of School Epidemics.—In regard to measles, Bard states that it is never contracted from a convalescent. It is brought into the school by a child who was in the prodromal stage, and he transmits it to his mates, who all develop the eruption exactly ten or twelve days after the eruption of the first child. Then comes a second crop of cases, with the same interval, unless contagion has been arrested by closing the school at the proper moment, that is, for five or six days counting from seven or eight days after the day when the first child was kept home from school on account of unmistakable sickness. The first group contaminated by the first child will develop their measles at home during this period, and will have no chance to contaminate a new set of children and the chain is thus broken. Unfortunately, no one thinks of closing a school just for a single case of measles. Not until a whole crop has developed is any attention paid to it, and then it is too late for really effectual prophylaxis. The same principle should apply in families; there is no use in isolating the child that has developed a frank case of measles. The thing to do is to isolate the contacts, and let them develop their measles, if they are going to develop it, isolated from others, so that there will be no chance for a second crop from them.

Shock Treatment.—Merklen and Wolf remark that grave or protracted infections are the special field for shock treatment, and especially lingering septicemias, particularly those with high and long sustained fever, testifying to good reacting powers on the part of the organism. An abortive crisis, with transient drop of the temperature, may be transformed into a natural curative crisis by the influence of parenteral protein therapy or other form of shock. They advocate anaphylactic shock as the preferable method when available, as this never fails to induce the shock when the own serum, or a vaccine or antiserum is injected intravenously. But the action may not always be a therapeutic effect; meningeal infections seem to be influenced more readily than typhoid. This method requires injection of 1 or 2 c.c. of the shock-inducing substances, with 0.5 c.c. of 1/1000 epinephrin solution in 100 c.c. of 0.9 per cent. sodium chlorid solution. The turpentine fixation abscess and probably many other local measures should be classed as local or general shock treatment.

Male Genital Glands in Infectious Diseases.—Tourneux recalls that the genital glands aid in the combating of infection both by their external and their internal secretion. Hippocrates mentioned the inflammatory reaction of the testes in mumps. There seems to be in them a somewhat similar process to that in the lungs, desquamation of epithelium and mechanical elimination. The micro-organism may be found in the testes or only its toxins may reach them; the defensive reaction of these glands seems to have a certain specific character, in the so-called infectious orchitis.

Modern Conception of Spirochetoses.—Philibert reviews the spirochetal infections that have been listed in the last twenty years; up till then only relapsing fever had been definitely recognized as a spirochetosis. All seem to be obligatory septicemias, and this entails vascular lesions as a common feature. The liver and kidneys are always more or less affected, and also the meninges and nerves. Spirochetoses are distinguished further by their cyclic course, and in the acute forms this corresponds to a cyclic evolution of the parasite. In the latent periods, although the spirochete cannot be detected in the blood, it must be present in some other form, as the blood remains virulent. Another common feature is the obligatory contagiousness; direct in syphilis and yaws, only by an intermediate host in the majority of spirochetoses, but all the tissues seem receptive. Other common features are that the disease does not confer immunity, and that the Wassermann reaction is positive in all during the acute phase. Typhus, multiple sclerosis and other diseases may prove of spirochetal nature, which would give hope of successful treatment, as we have powerful weapons already against the spirochetoses.

Prevalence of Malta Fever.—Sée warns that Malta fever may simulate typhoid, paratyphoid, influenza, acute articular rheumatism, tuberculosis and certain forms of malaria. It can almost always be traced to cheese made from goat's milk or the raw milk, and is more prevalent than generally suspected. Preventive vaccination of goats seems the most promising measure in prophylaxis.

Modern Conception of Plague.—Karsenty emphasizes the importance of the known reservoirs of plague infection and of healthy carriers, both human and rat. He reiterates that every port should have the rats examined at regular periods for plague bacilli.

Néoplasmes, Paris

3: 241-288 (Dec.) 1924

Gastric Ferments with Gastric Cancer. A. Robin.—p. 241.
*Laryngectomy for Cancer. G. Leyro Diaz.—p. 250.

Total Laryngectomy for Cancer.—Observation of over a hundred cases has convinced Leyro Diaz that total laryngectomy is preferable for cancer of the larynx. Under anesthesia of the cervical plexus and perilaryngeal infiltration, not only a total laryngectomy can be performed but also a partial pharyngectomy and extirpation of affected glands. Radium and roentgen-ray therapy should be considered after laryngectomy. A phonation tube may be used to facilitate speech.

Paris Médical

53-80 (Jan. 17) 1925

Respiratory Diseases in 1924. P. Lereboullet and Lelong.—p. 53.
Hemoptysis from Mere Dilatation of the Bronchi. Besançon and Azoulay.—p. 60.
*Pneumonia from Friedländer's Bacillus. Lemierre and Kindberg.—p. 67.
Defective Respiration in Children. P. Lereboullet.—p. 75.

Pneumobacillus Pneumonia.—Lemierre and Léon-Kindberg describe three cases of pneumonia with fatal issue, caused by Friedländer's bacillus. The tendency of the lesions to spread, the rapid development of the septic necrotic process, and especially the extreme proliferation of the bacilli are the characteristic features in the pneumonia of this type.

Presse Médicale, Paris

33 : 49-64 (Jan. 14) 1925

*Study of Experimental Rickets. A. B. Marfan.—p. 49.
Total Tonsillectomy. G. Portmann.—p. 50.
*Diabetic and Renal Acidosis. P. Delore.—p. 52.

Experimental Rickets and Its Pathogenesis.—Marfan analyzes American works on experimental rickets induced in white rats. While he admits that the bone lesions may resemble those of rickets in children, he points out that the softening is more rapid and more pronounced in the rats.

The main difference, however, is that there are no changes, or only slight changes are evident, in the bone marrow of the animals. The lowered content of phosphorus and, less frequently, also of calcium in the blood, noted in rickets, is not due to insufficient supply or defective absorption. The property of bones to utilize phosphorus and calcium is diminished, or suppressed, in rickets. The resulting excess of the elements in the blood is eliminated in the urine and stools. The lesions in rats resembling rickets may be due to autointoxication from deranged nutrition, common on deficiency diets.

Diabetic Acidosis and Renal Acidosis.—Delore declares that no connection exists between the presence of acetone bodies in the urine and acidosis. The characteristic sign of acidosis is a diminished alkali reserve in the blood. The ammoniuria in diabetic acidosis seems to vary parallel to changes in the alkali reserve. Renal acidosis may play a greater part in uremia than the azotemia. He accepts that the kidneys may produce ammonia, which neutralizes the acids. Consequently, reduction in the ammonia production, from disturbed functioning of the kidneys, may entail acidosis. It is assumed that defective functioning of the kidneys may be a secondary manifestation in acidosis. This explains the similarity of diabetic and uremic coma. The Van Slyke technic was used for estimation of the alkali reserve in his extensive research.

Revue Franç. de Gynécologie et d'Obstét., Paris

20: 633-664 (Nov. 10) 1924

Extract of Male Gonads in Gynecologic Treatment. Pierre and Jeanv. —p. 633.

20: 713-776 (Dec. 10) 1924

*Treatment of Uterine Fibroma. Goulliond.—p. 713.

Indications for Treatment of Fibroid Tumors of the Uterus.—Goulliond protests against surgical measures in treatment of fibromas in young women and women near the menopause. They should be kept under supervision on the pretext of medical treatment. With a pedunculated fibroma tending to develop in the abdominal cavity, myomectomy may be advisable. Hysterectomy is indicated when the diagnosis is dubious between fibroma or cancer. Radium proved useful in his eighty-six cases of fibroma, free from complications in the adnexa. Roentgen-ray treatment may be considered in some cases.

Revue de Médecine, Paris

41: 521-584, 1924

Pathogenesis of Edema. Bénard and Binnenni.—p. 521.
*Antagonism Between the Arteries. Trunecek.—p. 537.
Hemolytic Jaundice in Malaria. Traband.—p. 550.
*The Meninges in Typhus. L. Karwacki.—p. 560.
Recent Works on Chronic Bradycardia. H. Godlewski.—p. 570.

Antagonism Between the Arteries.—Trunecek points out that the different behavior of the superficial and the visceral arteries is due to an inequal distribution of muscular fibers in the arterial walls. Circular fibers predominate in the surface arteries, while longitudinal fibers predominate in the visceral. Consequently, stimulation of the vasomotor center by the metabolic waste products in the blood induces ischemia at the body surface. A simultaneous hyperemia occurs in the organs, especially in the kidneys, with elimination of the waste products, and restoration of the circulation balance.

Reaction of the Meninges in Typhus.—Research on the meningeal reaction, by way of lumbar puncture, in 370 patients with typhus, showed that the meninges are constantly involved, except in the mildest cases, from the second day of the disease. The morbid condition of the meninges may persist even after defervescence.

Revue Médicale de la Suisse Romande, Geneva

44: 689-784 (Nov.) 1924

Physiologic and Pathologic Effects of Altitude. A. Loewy.—p. 689.
Radiotherapy of Cicatricial Keloids. C. Du Bois.—p. 705.
Hemoptysis from Congestion in Tuberculosis. Nigoul-Poumal and Jalonstre.—p. 713.
Chronic and Perforated Gastric and Duodenal Ulcers. M. Boleas.—p. 722. Conc'n, p. 810.
Aortic Embolism of Mitral Origin. Turrettini and Guder.—p. 739.

Rivista di Clinica Pediatrica, Florence

22: 801-872 (Dec.) 1924

Hyperchloremic Diabetes Insipidus in a Child. E. Mensi.—p. 801.

Semana Médica, Buenos Aires

2: 1145-1216 (Nov. 20) 1924

*Intracavity Suturing. L. Samengo.—p. 1145.
Thyroid Treatment of Fatty Degeneration of the Kidney. J. R. Goyena. —p. 1156.
*Silent Abdominal Aortitis. A. Navarro.—p. 1157.
*"Rheumatism" from Congenital Syphilis. M. Acuña and F. Bazán.—p. 1159.
*Rupture of Uterus at Term. M. Torem F. de Gandino.—p. 1186.
*Pancreas Treatment of Eczema and Seborrhea in Infants. Rueda.—p. 1190.
Choreiform Syndromes in the Pregnant. Pérez and Bros.—p. 1193.
Primary Tuberculosis of the Nose. Franchini and Nebbia.—p. 1196.

Intracavity Suture in Mouth, Nose or Ear.—Samengo reproduces twenty-nine illustrations of his needles, etc., with which he has sutured in the depths of the natural cavities in and around the face.

Abdominal Aortitis.—Navarro's patient had never presented symptoms to attract attention to the abdominal aorta, but necropsy disclosed multiple ulceration in it. This explained the puzzling general peripheral paralysis of the vessels, and the paroxysmal jaundice.

Chronic Rheumatism in Children.—Acuña and Bazán give an illustrated description of seven cases of chronic rheumatism in children (4 to 15). The distribution was more or less symmetrical. The heart was not affected, and the onset was insidious and painless. All but one gave a positive Wassermann reaction, and only one responded to tuberculin tests. On the assumption of congenital syphilis, specific treatment was applied, with organotherapy as indicated, and appreciable benefit was realized, although irreparable lesions were not modified. Nothing was discovered which serves to differentiate the syphilitic cases from ordinary chronic rheumatism. With the least doubt, specific treatment should be begun promptly to ward off destructive processes and ankylosis.

Rupture of Uterus During Labor.—De Gandino relates that the four cases she reports were brought to the hospital in a recent four months period. In three of the cases, large doses of quinin had been given, the hydrocephalus in one case not having been known. Subcutaneous emphysema in one case gave the clue to the rupture. Only one of the women survived the shock or peritonitis.

Pancreas Treatment of Seborrhea and Eczema in Infants.—Analysis of such cases seems to show that the assimilation of fat is not quite normal, and Rueda declares that it is logical to seek to reenforce the pancreas in its task of coping with the fat in the milk by supplying a homologous substance. He has been amazed at the success of feeding pancreas to such infants, and here reports a new series of cases, bringing the total to seventy-five in which seborrheic eczema of the scalp or elsewhere, and certain other forms of eczema, were effectually combated by feeding pancreas tissue in tablet or pulverized form, from 0.5 to 2 or 3 gm. daily. The cure was complete in from one to four weeks. His series includes several cases reported by other physicians in Argentina and elsewhere.

Deutsche medizinische Wochenschrift, Berlin

51: 1-48 (Jan. 2) 1925

Affections of Right Hypochondrium. F. Kraus.—p. 1.
*Physician as Cause of Psychic Disturbances. O. Bumke.—p. 3.
*Titration of Thyroid Preparations. W. Straub.—p. 4.
A Standardized Thyroid Preparation. R. von den Velden.—p. 6.
*Tuberculous Infection. F. Neufeld.—p. 7.
*Etiology of Influenza. R. Pfeiffer.—p. 10.
*Present Status of Bacteriophages. O. Bail.—p. 13.
Serologic Problems. H. Sachs.—p. 16.
*Occipital Neuralgia After Goiter Operation. F. König.—p. 18.
*Roentgen Treatment of Uterine Cancer. H. Wintz.—p. 19.
Fluids of the Eye. O. Weiss.—p. 21.
*Colloids in Water. J. v. Duránji.—p. 23.
*Spermin. F. Wrede.—p. 24.
Subjective Disturbances with Hypertension. Schultz and Biehn.—p. 25.
"Treatment of Hypertrophic Breast." E. Lexer.—p. 26.
Reply. E. Holländer.—p. 26.
Survey on Psychiatry. Bostroem.—p. 27.
Vital Statistics in Switzerland. Prey.—p. 29.

Social Insurance Revision. Alexander.—p. 31.
Insurance of Bavarian Physicians. Stauder.—p. 33.
Medicolegal Problems. Ebermayer.—p. 35. Cont'n.
Art and Mental Disease. Utitz.—p. 36.
Hemostasis. Zimmer.—p. 45. Cont'd.

Physician as Cause of Psychic Disturbances.—Bumke has encountered many patients with "iatrogenous" affections. A careless word about the arteries, about the "heart showing a slight tendency to fatty degeneration" or the like, might endanger the whole outlook of the patient. Nearly every one has a dread of disease that makes a critical attitude impossible. Even a physician is unnecessarily overanxious about his physical condition, or at least about that of his wife or children. He believes that the worst excesses in masturbation cause less harm than some occasional remark by a physician on the subject, to persons who hardly ever have done it. Hysteria is a dangerous diagnosis, since—by way of the detour over the relatives—it produces an actual asocial attitude on the part of the patient. He knows of one instance in which a physician endeavored to tranquillize his patient by assuring him that certain other persons with the same condition "had lived as long as two years." A man with a syphilitic aortitis had lived happily until a prominent internist warned him not to take the risk of going on the street without a companion. The expected breakdown did not occur in the following seven years, but the patient became a grave hypochondriac. There is no need for lying, but it is not necessary to tell the patient everything—especially the things which we do not really know ourselves, such as the prognosis with Argyll Robertson pupils, problems of heredity, etc. Most people know how to die much more decently than they would have believed possible while they were healthy. Yet very few really wish and can bear to be told the whole truth.

Titration of Thyroid.—The health board of the League of Nations charged Straub with the task of elaborating a method for standardization of thyroid preparations, with especial regard to the acetonitril test. He reports the results Haffner and Konyama obtained in his institute. They found as the best way the introduction of the preparation into the mouse stomach. It was interesting to note that a 3 per cent. emulsion was almost without action, while a 5 per cent. suspension increased the resistance more than 100 per cent. A 10 per cent. suspension gave no better results. The action was manifest within three hours, and reached the maximum in twelve to twenty-four hours. He suggests to use as the standard unit a preparation which would double the acetonitril resistance of a mouse when introduced in the amount of 0.2 c.c. of a 5 per cent. suspension.

Tuberculous Infection.—Neufeld draws analogies between the severity of the infection through the lungs and through the skin in tuberculosis and various other diseases. Much higher amounts of bacilli are necessary to infect through the skin or the alimentary tract. It seems that the virulence is attenuated during such passage.

Etiology of Influenza.—Pfeiffer reviews recent investigations on the etiology of influenza. He regards Cecil's and Blake's animal experiments with the influenza bacillus as important, but admits that serologic tests present difficulties. He believes that influenza bacilli have great variations of receptors. He regards with considerable skepticism Olitzky's and Gates' *Bacterium pneumosintes*. Hottinger found in rabbits after intratracheal injection of sodium chlorid solutions such changes as they report after injections of these cultures. He finds that the germ he isolated in 1891 is the most probable cause.

Present Status of Bacteriophages.—Bail shows that the destruction of germs is only one of the actions of bacteriophages. The production of strains which are resistant against the bacteriophage used is more important for the identification of the latter. He believes that the bacteriophages represent splinters of chromatin which have preserved the dissolving but lost the constructive property. Addition of them to new germs, which are in the course of the process of division, causes a predominance of the dissolving properties of their chromatin and forces it to become a bacteriophage. Bacteriophage-resistant strains are mutations due to a loss of the corresponding gen, which would otherwise become a new bacteriophage. It is possible that certain pathologic phenomena of an infectious nature might have a similar endogenous origin. Besides this, they could influence the progeny of the animal by changing the germ plasm.

Occipital Neuralgia After Goiter Operation.—König reports a case of occipital neuralgia developing within three weeks after an operation for goiter in a young man. The affection was probably due to some injury of the occipitalis minor nerve, in the conduction anesthesia, and secondary radiation of the pain along the occipitalis major. The patient recovered after extirpation of the entire occipitalis minor nerve.

Roentgen Treatment of Uterine Cancer.—Wintz reviews 800 cases of cancer of the uterus treated with roentgen rays between 1915 and 1922. He attributes six deaths (less than 1 per cent.) to the treatment itself. The results were fair, but he emphasizes that 15-20 per cent. of uterine cancers are absolutely refractory to roentgen rays, although they seem at first to be favorable incipient cases.

Colloids in Water.—Darányi shakes the water for ten seconds in a test tube, 18 cm. long and 18 mm. wide, filled to one third. Pure water does not form any foam. He recommends this as a simple test in examining wells.

Spermin.—Wrede succeeded in isolating from human sperm a base of the formula $C_5H_{14}N_2$. It seems to be identical with the probably impure substance isolated by Schreiner in 1878, and called spermin.

Medizinische Klinik, Berlin

21: 1-40 (Jan. 4) 1925

*Tuberculosis of Eyeball. W. Stock.—p. 1.
*Haff Disease. O. Lentz.—p. 4.
*Cyst of Caudate Nucleus. O. Pötzl and H. Schloffer.—p. 8.
Goat Milk Anemia. H. Brüning and W. Fischer.—p. 12.
Colon Bacillus Infection of Middle Ear. G. Charousek.—p. 15.
Gallstone Operation. Schloffer.—p. 17. Idem. Rovsing.—p. 17.
Hexanitrodiphenylamin Dermatitis. H. Hoffmann.—p. 18.
*Inhalation of Insulin. W. Robitschek.—p. 19.
Albers-Schönberg's Disease. E. J. Kraus and A. Walter.—p. 19.
Psychodiagnosis and Psychotherapy. H. Fendel.—p. 22. Cont'n.
Sedimentation Test. L. Tietz.—p. 24.
Recent Works on Ophthalmology. Adam.—p. 27.
The Physician and Physical Training. Glauning.—p. 39.

Tuberculosis of Eyeball.—Stock points out that about 60 per cent. of the cases of chronic uveitis are of a tuberculous nature, while syphilis accounts for less than 5 per cent. A focal reaction after subcutaneous injection of tuberculin is diagnostically important. Wolff-Eisner's local instillation of tuberculin is dangerous in these cases. The diseased eye should be put to rest with atropin, but suitable eyeglasses must be prescribed. Few patients would otherwise keep on for months with the instillations. A course of tuberculin treatment is advisable.

Haff Disease.—Lentz gives a survey on the epidemic of muscular rigidity and methemoglobinuria observed recently among the fishermen of the Haff. Lewin's hypothesis of a poison containing arsenic proved correct. Two cellulose factories had been using in the last years Spanish pyrite containing much arsenic. The water of the river Nogat had been diverted to regulate another river, so that the waters of the Haff are stagnating. Comparatively large amounts of arsenic have been found in the water and sediments of the Haff, and in the urine and organs of the patients. Schnabel injected 1 c.c. of the filtered water into himself and into one of the convalescents. It produced a typical attack in the latter. The cause is a gas consisting of an organic compound of arsenic (not AsH_3).

Cyst of Caudate Nucleus.—Pötzl and Schloffer publish the history of a patient with a cyst of the left caudate nucleus. The correct diagnosis in the demented patient with choked disks was based on the symptoms of pressure on the frontal parts of the cortex, near the frontopontine radiation, and on motor disturbances suggesting an affection of the striate body. The deep cyst contained 86 c.c. of a clear yellow fluid. A communication between the lateral ventricle and the cyst was established by introduction of a tenotome along the needle. They recommend this method, when the possibility of a parasitic origin or abscess is excluded.

Inhalation of Insulin.—Robitschek's experiments on a rabbit and on a diabetic patient confirm the action of inhaled insulin. The method, however, is wasteful and the dosage uncertain.

Münchener medizinische Wochenschrift, Munich

72: 1-44 (Jan. 2) 1925

*Cancer of the Stomach. W. Anschütz.—p. 1.
Microsedimetry. Linzenmeier.—p. 5.
*Irradiation of Gynecologic Cancer. Scholten and Voltz.—p. 6.
Treatment of Lupus in Outpatients. F. Wirz.—p. 10.
*Conservation of Recurrens Spirochetes. W. Krantz.—p. 12.
*So-Called Myositis After Illuminating Gas Poisoning. A. Braun.—p. 13.
*Death After Intravenous Injection of Colloidal Silver. Zangemeister.—p. 15.
Some Medicolegal Aspects of Obstetrics. Hofmeier.—p. 16.
*Varioloid Eruption in Typhoid. C. Gottschalk.—p. 17.
Splint for Extension of Thighs. E. Boerberg.—p. 18.
Abdominal Operations. A. Krecke.—p. 18.
Expert Testimony in Ear Affections. B. Heine.—p. 20.
The Romance Period in Medicine. G. Honigmann.—p. 23.
Psychology of Children. W. Eliascberg.—p. 26.

Cancer of the Stomach.—Anschütz reviews the material of 1,156 cases of gastric cancer treated at his clinic from 1901 to 1922. Its frequency is not increasing in Kiel. The most important diagnostic aids are occult bleeding and roentgen examination. If both are negative, a laparotomy is superfluous. Repeated negative findings with the occult bleeding test make even a beginning cancer improbable. He admits now that the duration of preoperative subjective disturbances is not proportional to the gravity of the prognosis. The contrary seems to be true. He uses gastro-enterostomy only with extensive metastases and grave motor insufficiency. The patients survived on an average about six months. One was a notable exception, surviving twenty-five months in spite of multiple metastases in the peritoneum. A cure lasting for three to five years was obtained in 2-4 per cent. of the total of patients. The prognosis of those cases in which resection had been done averaged much better: 22 per cent. were living after five years, and 21 per cent. after ten.

Irradiation of Gynecologic Cancer.—Scholten and Voltz report the results of radium and roentgen treatment of patients with gynecologic cancer. Döderlein has not been operating for uterine cancer since 1912. Of the 313 carcinomas of the cervix admitted to the clinic in 1918 and 1919, forty-two were absolutely hopeless. The rest were irradiated. Of the total, 12.4 per cent. are healthy after five years of observation—that is, 14.3 per cent. of those who were treated. Of the 37 patients who were operable, 16 are cured. Of the other cancers, the best results were obtained in cancer of the body of the uterus; 7 have survived out of 13 patients. They are confident that these results will be still further improved by certain changes in the technic introduced lately: They irradiate the pituitary region, and observed a lower mortality and marked increase in weight. The production of rays has been also improved, and the irradiation is done in a closed chamber so that the patient breathes pure air. Since this innovation was introduced, the "roentgen jag" has practically disappeared. They point out that the results published by various authors allow only an estimation of the value of the particular method used, not a general judgment as to the value of irradiations.

Conservation of Recurrens Spirochetes.—Krantz preserves recurrens spirochetes for three or four weeks or more by inoculation of a few drops of the infected blood in physiologic salt solution with the addition of boiled white of egg.

So-Called Myositis After Illuminating Gas Poisoning.—Braun attributes the affections of skin and muscles after carbon monoxid poisoning to muscular hemorrhages. They are probably due to ruptures of blood vessels by the increased arterial pressure when breathing of air is resumed, or in violent movements.

Death After Intravenous Injection of Colloidal Silver.—Zangemeister's patient became febrile on the fourth day after delivery and had a chill on the sixth. Hemolytic streptococci were in the lochia, but no localization of the infection could be found. The patient's condition became much worse fifteen minutes after an intravenous injection of colloidal silver. She died twelve hours later. Since his statistics show no advantage of giving the injections in other cases of puerperal fever, he has decided to use the drug in future, if at all, only intramuscularly or in an enema.

Varioloid Eruption in Typhoid.—Gottschalk observed an eruption resembling smallpox on the sixth day of typhoid in a lactating woman. Only staphylococci grew from the pustules. The patient recovered.

Wiener klinische Wochenschrift, Vienna

38: 1-60 (Jan. 1) 1925

Pharmacology and the Clinic. E. P. Pick.—p. 1.
The Goiter Problem. C. Wegelin.—p. 5.
Thyroid Function and the Goiter Question. F. Kraus.—p. 9.
Surgical Aspects of Goiter. A. Eiselsberg.—p. 13.
*Nervous Disturbances of Organs. J. Bauer.—p. 16.
*Surgical Treatment of Pulmonary Tuberculosis. W. Denk.—p. 19.
*Protein Therapy of Diabetes. W. Falta and F. Högler.—p. 24.
*Changes in the Clinical Picture and Treatment of Syphilis. E. Finger.—p. 27.
*Ophthalmology in China. A. Fuchs.—p. 30.
*Pathology of Herpes. Luger and Lauda.—p. 33.
*Infection and Function of Urogenital System. H. Rubritius.—p. 37.
*Growth Disturbances of Hematopoietic Organs. C. Sternberg.—p. 40.
Acute Gastritis. O. Stoerk.—p. 44.
Medical Impressions of London. M. Oppenheim.—p. 49.
*Treatment of Pneumonia. N. Jagic.—p. 51.
Recent Works on Roentgen Biology and Treatment. L. Freund.—p. 52. Cont'd.
Emergency Diagnoses in Ophthalmology. F. Dimmer. Supplement.—pp. 1-16.

Nervous Disturbances of Organs.—Bauer discusses the mechanism of nervous affections of the organs. An individually different *locus minoris resistentiae*, which is determined by hereditary moments, frequently is the decisive element in the localization of disorders due to increased irritability of the vegetative nervous system. An additional neuropathic or psychopathic predisposition may "fixate" the disturbances, especially under the suggestion by a physician. Words may do a great deal of harm, and rank as regards danger with the knife and drugs. A regular psychanalysis is necessary only when the psychogenous element is practically the whole content of the neurosis. Abnormal functioning of endocrine glands—especially with the vicious circle resulting from the fact that they regulate the irritability of the vegetative nervous system and are influenced by it—may be also one of the causes.

Surgical Treatment of Pulmonary Tuberculosis.—Denk reviews the results of 124 thorax operations in tuberculosis. He confirms Schlesinger's observation on the almost inevitably unfavorable prognosis of pneumonia in patients who had been subjected to a thoracoplasty. He has abandoned the intrapleural pneumolysis operation. A subsequent gas embolism is too frequent. It occurred in one of his patients although there was an interval of three weeks between the pneumolysis and the artificial pneumothorax. Exudates are also frequent. Complications were almost the rule with paraffin fillings. Tuffier's free transplants of fat tissue heal, but they are not as effectual as thoracoplasty. He performs the operation in two sittings, because the mortality is much lower. Spondylitis or not advanced tuberculosis of the larynx are not contraindications. The condition of the heart is an important factor. Phrenicotomy was used chiefly to test the resistance of the other lung, or to supplement pneumothorax with diaphragmatic adhesions of the lung.

Protein Therapy of Diabetes Mellitus.—Falta and Högler tested the influence of injections of milk and casein in nine diabetics kept on a constant diet. They deny any favorable influence, except perhaps the lowering of the blood sugar when injected on a fasting stomach.

Changes in the Clinical Picture and Treatment of Syphilis.—Finger agrees with Proksch's opinion that syphilis was not imported from America. It was classed in ancient times with lepra. The sixteenth century brought only a better diagnosis. It is natural that the grave cases predominate in the clinical descriptions. It is probable that the majority of patients had the same symptoms as we still find in neglected populations. He asserts, however, that syphilis has taken different aspects in the civilised countries in our times. Since the chronic treatment was instituted, it has ceased to be an affection of the skin and attacks chiefly internal organs—especially

the central nervous system and the aorta, perhaps because the immunizing action of the skin cannot develop. Little of the specific remedies is necessary if the reaction of the organism is good. They are most valuable in the group which needs such a stimulation, and useless if the organism is unable to react. General roborant treatment is important. Besides this, the nonspecific remedies begin to play a great rôle. Kyrle has treated in Finger's clinic several hundred patients exclusively with arsphenamin and malaria inoculation. The results of one course of this treatment are very promising.

Ophthalmology in China.—Fuchs had been invited to teach for one year at the Peking Union Medical College. He considers it a first class school and research institution. A disadvantage is the lack of patients, due partly to the lack of confidence of the public, partly to the registration fee required from all but the most destitute. Small as it is, it is much for the coolie. He thinks that senile cataract is much rarer in China than elsewhere. Syphilis and tuberculosis of the iris are frequent. Kala-azar anemia is accompanied by retinal hemorrhage.

Pathology of Herpes.—Luger and Lauda review the pathology of febrile herpes and zoster and their relation to encephalitis. They believe in the multiplicity of etiology of zoster—especially because of the occurrence of varicella zosters. Lauda and Silberstein could not confirm the serologic identity of varicella and zoster.

Infection and Function of Urogenital System.—Rubritius points out that every affection of a part of the urogenital apparatus reacts on the whole system. A suprapubic fistula improves not only the condition of the bladder, but also of the kidneys. Discission of a too narrow urethral orifice has sometimes a surprisingly favorable influence on a chronic prostatitis. He uses nephrostomy on the most pathologic kidney as a preliminary operation when both kidneys are affected. He observed within two or three weeks a marked improvement of the function of the other kidney, and was able to perform the nephrectomy. This two-stage nephrectomy is also advisable in a large pyonephrosis. The fibrous adhesions which sometimes involve the vena cava retrogress after the preliminary nephrostomy.

Growth Disturbances of Hematopoietic Organs.—Sternberg applies Kundrat's viewpoint of vegetative disturbances: these are anomalies of the localization of the tissues. He believes that the growth of myeloid or lymphatic tissue in the internal organs in leukemia begins from embryonic remnants of such tissue—not by a differentiation of adventitial cells. The frequent presence of myeloid foci in the spleen is well known. He also believes that the megaloblasts in pernicious anemia originate from remnants of early erythropoietic tissue, and are not due to a change of blood formation. Kundrat's lymphosarcoma might attack the surrounding tissues by the growth of preformed microscopic nodes in a network arrangement.

Treatment of Pneumonia.—Jagic regards pneumonia in itself as an indication for an energetic cardiovascular treatment. Digitalis takes time before the action develops. Therefore it is too late to administer it when there are already signs of a failing heart. Daily doses corresponding to 0.2 or 0.3 gm. of titrated leaves should be given. They do no harm even if continued for eight to twelve days and longer. The danger of cumulative action is overestimated, and is practically excluded with good continuous observation of the heart. Strychnin is a good vasotonic. Large doses of camphor should be also given daily. Caffein may be added in grave cases.

Zeitschrift für Geb. und Gynäkologie, Stuttgart

88: 249-494 (Dec. 18) 1924

*Actinomycosis of Female Genitals. S. Mitra.—p. 249.
*Behavior of Fetal Heart Sounds During Delivery. E. Frey.—p. 261.
Reconstruction of Female Urethra. N. Kaluschkin.—p. 304.
Velocity of Blood in Pregnancy. F. Klee.—p. 308.
*Mortality of Premature Infants. W. Franz.—p. 319.
Types of Ovarian Epithelial Tumors. E. Kroepelscher.—p. 341.
Operative Treatment of Uterine Prolapse. A. Cleve.—p. 355.
Function Tests of Sympathetic Nervous System in Pregnancy and Puerperium. F. Peyser.—p. 363.
Surface Changes in Ovary in Later Life. W. Chin.—p. 375.
Cotyledons of Human Placenta as Artefacts. F. Kermauner.—p. 396.
Fetal Chondrodystrophia. O. Herschan.—p. 397.
*Acidosis of Pregnancy. O. Bokelmann.—p. 408.

Actinomycosis of Female Genital Organs.—In a case described, the vaginal portion of the uterus was the seat of the lesion. Necropsy confirmed that it was probably a primary process.

Determination of Asphyxia During Delivery by the Fetal Heart Sounds.—Frey's report is based on 2,376 births, with a pathologic condition of the fetal heart sounds in 6.52 per cent. (coiling of umbilical cord in 18.8 per cent.). Auscultation by the Walthard technic, with heart sounds charted, makes possible the recognition during labor of the typical asphyxia stages (I to VI) and their differentiation, as Frey describes in detail, with charts. When the contractions follow closely, and the fetal heart rate remains below 100 during the entire interval between two labor pains, operative interference and speedy delivery are indicated unless the heart sounds revive under chloroform. He applies chloroform anesthesia to influence grave fetal asphyxia, and states that in 62.85 per cent. of thirty-five cases, the heart sounds recuperated, and in over 50 per cent. spontaneous delivery could be awaited, when otherwise forceps seemed inevitable. The disagreement regarding the significance of the diminished intensity and frequency of the fetal heart sounds are due to differences in method and interpretation. The retarding and weakening of the heart sounds may be caused not only by carbon dioxid poisoning but also by mechanical stimulation of the vagus nerve through compression of the skull. The fetal mortality during delivery has no direct connection with the ordinary use of the forceps, because it is essentially influenced by the length of the expulsion period.

Causes of Mortality in Premature Children.—Of 132 underterm children received directly after birth or during the first year, 62.12 per cent. died, and of the seventy-five received the day of birth or the next two days, 72 per cent. died. Framm found that the great majority of deaths resulted from pathologic conditions, not simply from lack of viability. The lower the birth weight, the greater the mortality. The abnormal tendency of the premature to hemorrhage was manifest in the 24 per cent. (of the seventy-five) that died from intracranial and 4 per cent. from suprarenal hemorrhage. Lumbar puncture was made in eleven cases. With jaundice, bilirubin was found proportionally in the spinal fluid; without jaundice, only in cases of intracranial bleeding. Skin hemorrhage occurred in 22.6 per cent., and 5.3 per cent. had congenital syphilis. The birth trauma caused more deaths than weakness. About 50 per cent. who lived more than one month showed signs of rickets.

Acidosis of Pregnancy.—Bokelmann made serial examinations of the blood in twenty-five patients, usually once during pregnancy, once at the beginning of the first labor pains, and the third at the end of the puerperium. The findings indicated that the ammonia production toward the end of pregnancy no longer sufficed to neutralize the excess of acid in the blood. Pregnancy was accompanied by a progressive increase in the acetone bodies in the blood, depleting the alkali reserve still further.

Zeitschrift für urologische Chirurgie, Berlin

16: 181-282 (Dec. 24) 1924

*Operations for Horseshoe Kidney. L. Löffler.—p. 181.
*Roentgenologic Sign of Renal Tuberculosis. A. Freudenberg.—p. 187.
Diagnosis and Treatment of Ectopic Kidneys. Gottlieb.—p. 194.
Mechanism of Recurrence After Prostatectomy. Freudenberg.—p. 206.
Cystic Enlargement of Ureter with Aplasia of Other Kidney. P. Janssen.—p. 213.
*Wandering Kidney in Relation to Gallbladder Disease. Idem.—p. 219.

Operations on Horseshoe Kidneys.—Löffler remarks that in the 108 operative cases he has found on record, the correct diagnosis had been made beforehand only in twelve. It had not been made in the two personal cases he reports in which half of the kidney was resected. In the 445 kidney operations in Kroiss' service (Vienna) in the last eleven years, there were only four horseshoe kidneys to sixty-nine other malformations of the kidneys.

Roentgenographic Sign of Renal Tuberculosis.—Freudenberg has noticed that when there is a tuberculous lesion in the kidney, the ureter on that side is generally more or less patholcgic. Consequently, the bladder is secondarily slightly distorted, so that it is unable to expand symmetrically when distended. It is instructive to make two or three exposures on the same plate, with different degrees of distention from air or a contrast suspension.

Coincidence of Wandering Kidney and Gallbladder Disease.—Janssen has long made a point of examining and correcting conditions in the biliary apparatus in every operation for a sagging kidney. A general tendency to visceroptosis seems to be responsible for both the wandering kidney and the gallbladder disease in the frequent instances of their coincidence.

Zentralblatt für Chirurgie, Leipzig

52: 1-64 (Jan. 3) 1925

Acute Indications for Heart Tonics. R. Hahn.—p. 2.
*Cause of Effect After Periarterial Sympathectomy. O. Hahn.—p. 9.
*Periarterial Sympathicolysis. R. Ahrens.—p. 11.
*Diagnosis of Gastric and Duodenal Ulcer. H. Flörcken.—p. 13.
Instrument to Aid in Stomach Resection. R. Klaus.—p. 16.
Arrest of Hemorrhage After Operation on Stomach. Ehrlich.—p. 17.
Surgical Treatment of Ieing Liver. K. Urban.—p. 19.

Cause of the Effect After Periarterial Sympathectomy.—Hahn says that the hyperemia distal to the seat of the operation can be explained only by the interruption of the long centripetal nerves in the adventitia. This interrupts a great part of the centripetal reflex tracts, and results in a lowering of vasoconstrictor tonicity, with consequent hyperemia.

Modification of Periarterial Sympathectomy. — Ahrens reports excellent results in the treatment of injuries to the tissues, due to acute infections or grave trauma in the extremities, by a modified decortication of the brachial or femoral arteries. A 1 cm. segment of the adventitia is merely loosened from the media, without removing it. This procedure has the same effect as periarterial sympathectomy, but should rather be called periarterial sympathicolysis, as there is no resection, merely the 1 cm. longitudinal incision and blunt loosening of the outer coat.

Significance of Enlarged Glands in Diagnosis of Gastric and Duodenal Ulcer.—Lymphadenitis was found in 57.8 per cent. of 196 operative cases of gastric or duodenal ulcer (in 71.2 per cent. of the cases of ulcer of the lesser curvature). Flörcken believes this condition valuable in diagnosis and as an indication for resection, but only in connection with other symptoms.

Zentralblatt für Gynäkologie, Leipzig

48: 2777-2840 (Dec. 20) 1924

Increase in Frequency of Tubal Pregnancies. M. Graefe.—p. 2779.
Technic for Blood Transfusion. G. v. Wolff.—p. 2782.
Prevention of Retention of Scraps of Placenta. Wiemann.—p. 2785.
Insufflation of Fallopian Tube as Cause of Air Embolism. G. Schallehn. —p. 2787.
Prevention of Air Embolism from Insufflation. H. Sellheim.—p. 2790.
Danger of Air Embolism from Insufflation. K. Volkmann.—p. 2793.
Injury from Coitus. K. Seyfarth.—p. 2800.
Case of Needle in Ovary. F. Bierende.—p. 2802.
Determination of Constitutional Type. J. S. Galant.—p. 2804.
Supravaginal Amputation Versus Hysterectomy for Uterine Myomas. H. Thomson.—p. 2807.

Mitteil a. d. med. Fak. Univ., Tokio

31: 339-495 (Dec. 30) 1924. German Edition

Action and Fate of Epinephrin in the Organism. Y. Harada.—p. 339.
Behavior of Nerves in Female Genitals. K. Mabuchi.—p. 385.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 2691-2814 (Nov. 29) 1924

The Tijdschrift. G. van Rijnberk.—p. 2692.
*Epidemic Encephalitis in Young Infants. C. De Lange.—p. 2696.
*Intra-Ocular Tension. S. E. de Jongh and L. K. Wolff.—p. 2703.
Quantitative Microtest for Glycogen. De Jongh and Planelles.—p. 2713.
Helminths as Cause for Serious Disturbances. Faber.—p. 2716.
Perforated Gastric Ulcer. Suermondt.—p. 2720.
Subcutaneous Hemorrhages in Neuroses. H. Bolten.—p. 2734.
The Internal Secretion of the Ovaries. Wijsenbeek.—p. 2737.

Epidemic Encephalitis in Young Infants.—An infant a few weeks old presented a typical chronic form of epidemic encephalitis in De Lange's service, and was left with sequelae. In a second case, the infant, aged 7 months, has apparently completely recovered. De Lange reviews the literature on the disease in infants less than a year old, including Lemaire's Paris thesis on "Transmission of Epidemic Encephalitis Virus from Mother to Infant." Gross has reported that healthy children were born to four women a few weeks after the onset of the disease. Paterson and Spence conclude from their six cases in infants that the younger the child, the greater the mental defect left.

Intravenous Injection to Reduce Intra-Ocular Tension.—De Jongh and Wolff announce that rabbits treated with insulin, to the point of inducing convulsions, have their intra-ocular tension reduced. Then their serum, injected intravenously in other rabbits, reduces their intra-ocular tension. There is also a lowering of the intra-ocular tension with convulsions induced by strychnin and other poisons, but it is not so durable as with insulin. The pupils do not contract with the insulin lowering of the tension, and the blood pressure does not decline.

Hospitalstidende, Copenhagen

67: 841-864 (Dec. 31) 1924

Parenteral Protein Therapy. S. Sander-Larsen.—p. 841.
*Diabetic Coma with Uremia. E. Warburg.—p. 856. Begun, p. 809.

Diabetic Coma with Uremia.—Warburg found the first reference to diabetic coma in a case published in 1828 by Stosch. Besides the three forms with predominance of coma, of heart failure or of respiratory peculiarities, there is a form in which symptoms of uremia predominate. He compares six personal cases of this fourth form with analogous cases on record, remarking that the internist is confronted with a situation like that of the surgeon in the "acute abdomen." Even the diagnosis may be dubious in the absence of Kussmaul respiration and ketonuria, with only slight glycosuria. The urea or nonprotein nitrogen in the blood may give the clue, but determination of the sugar content is the only certain differential test. The necessity for haste in the correct diagnosis is the more imperative as the coma may be due to some transient abnormality in the metabolism which may be effectually combated before irreparable lesions are entailed. He is convinced that many cases of this type have been mistaken for and treated as pure uremia cases, especially as there may be little albumin or sugar in the urine and no acetonuria, but the sugar content of the blood is sometimes very high. Insulin helps to arrest the acute degeneration of the kidneys, with heart tonics and diuretics.

Hygiea, Stockholm

86: 897-944 (Dec. 31) 1924

*Proof of Paternity. E. Wolff.—p. 897.
Dangers of Mercury in Oil Vehicle. P. G. Månsson.—p. 917.

Proof of Paternity.—After reviewing historically the question of determining the parentage, and the present legal position of the various European countries in regard to illegitimacy and paternity, Wolff discusses the mendelian theory and the conception of the heredity of the blood groups with its medicolegal application. He regards the blood group test as the most valuable method available toward the solution of the problem of paternity in medical jurisprudence, especially when the findings testify against an alleged paternity.

Upsala Läkareförenings Förhandlingar, Upsala

30: 195-318 (Dec. 20) 1924

Atresia of the Esophagus. F. Ysander.—p. 195.
The Cleavage in Double Monsters. Ysander and Wikström.—p. 211.
*Sedimentation Test in Dementia Praecox. B. Jacobowsky.—p. 227.
Operative Cases of Cancer, 1900 to 1919. B. Carlson.—p. 263.
Experimental Cryptorchidism. L. Santesson.—p. 313.

Sedimentation Speed of Erythrocytes in Dementia Praecox.—Jacobowsky's tests in 112 cases in male patients showed normal or accelerated sedimentation speed, with the acceleration most marked in the cases of greatest organic deterioration. He found no connection between the number of eosinophil cells and sedimentation speed. While the sedimentation test is apparently of little practical value in psychiatric diagnosis, accelerated sedimentation is one of the most certain symptoms of far-reaching physical disturbance.